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A

SYLLABUS OF LECTURES

ON

SURGERY.

BY

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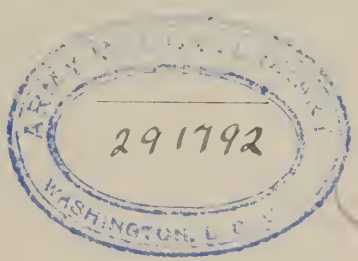

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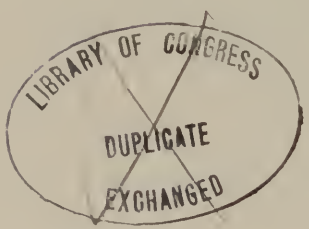

Stu.
Prom.

PREFACE.

These notes are designed to give the essentials of Surgery, in skeletonized form. They were suggested by the conviction that much is lost, to the student, by the prevailing system of note-taking, and that frequently the notes so taken are not a faithful representation of the subject in hand. This last is not, at all times, the fault of the student; it is a necessary consequence of a faulty system. The subjects included in this little volume, must not be considered a complete list of legitimate surgical topics. They are selected for the double reason that experience has shown the length of the term insufficient for a longer catalogue, and that they are the most suitable for a proper presentation of the principles of surgical science. The *art* of surgery being taught by clinical methods, little space has been given to that branch of the subject. It is hoped that those who use these notes will find them helpful, not only during their pupilage, but in active professional life.

IOWA CITY, IOWA, July 30, 1892. J. G. G.

TABLE OF CONTENTS.

I. MORBID ACTION.

Organic body, a living one, { Grows. / Assimilates food. / Reproduces.

Life { Nutrition (Repair). / Excretion (Waste).

Organism, unstable. { Atoms. Chemical unit. / Somacules. (Foster) Physiological unit. / Cells. Histological unit. / Tissues. / Organs.

Molecular death—physiological.

Somatic death — { physiological. / pathological.

Health, proportional waste and repair.

Disease, relative excess of { waste. / repair.

Morbid action. { Trophic—*e. g.* atrophy, hypertrophy. / Constructive—*e. g.* tumors, syphilis. / Destructive—*e. g.* ulceration, necrosis. / Specific—non-specific. / Organic—functional. / Semi-physiological, *e. g.* irritation. / Semi-pathological, *e. g.* hyperæmia.

II. DIAGNOSIS.

A "theory" of a given case, reached by { Analysis (Exclusion). / Synthesis (Inclusion).

Based upon— { (*a*) Anamnesis (history), near and remote. / (*b*) Etiology (causation), essential and accidental. / (*c*) Semeiology (symptoms), phenomena accompanying.

(*a*) ANAMNESIS.

Minor value; taken alone may be misleading.

Deception.
- Intentional.
  - Fear.
  - Shame.
  - Mercenary motives.
  - Egotism.
  - Hysteria.
- Unintentional
  - Ignorance.
  - Mental state.
    - Dementia.
    - Unconsciousness.

Includes
- Previous history; sometimes ancestral.
- Duration of present condition.
- Course and development.

(*b*) ETIOLOGY.

Material—
- Bacterial infection.
- Morbid agencies.
- Traumatism.

Immaterial—
- Psychical.
- Nutritive disturbances.

But in ALL cases a "lesion," near or remote, macroscopic or microscopic. Apparent, or actual.

EXCITING (determining), affecting all persons alike.
- Traumatism.
- Exposure to contagion.
- Exposure to morbid influences.

PREDISPOSING (maintaining), rendering one person more liable than another.
- Age.
- Sex.
- Occupation.
- Social condition.
- Race.
- Habits.
- Previous diseases.
- Family history.

(*c*) SEMEIOLOGY. Interpretation and determining value of symptoms.

Subjective.—Deception (*vide* "Anamnesis," ante).

Objective, includes all that can be recognized without the aid of the patient: *e. g.*

- Microscope.
- Thermometer.
- Stethoscope.
- Ophthalmoscope.
- Laryngoscope.
- Palpation.
- Percussion.
- Excretions.
- Physiognomy.
- Postures.

Urinalysis. Sensation.
Speculums. Mobility.

Alterations in *Form* as tumors, hernia, hydrocele.
Color, as inflammation, gangrene, ecchymosis.
Volume, as ascites, orchitis.
Transparency, as hydrocele, serous cysts.
Consistency, as solid and cystic tumors; œdema, and emphysema.
Relation, as fractures, dislocations.
Mobility, the same; spasms; paralysis; anchylosis.
Pulsation, aneurysm.
Sound, crepitus, crepitation, bruit.
Smell, as changed excretion.

III. PROGNOSIS.

Foretelling results, immediate or remote.

Natural history, as modified by
- Previous bodily state.
- Duration of present illness.
- Kind of treatment.
- Environment.

or complications
- Intrinsic.
- Extrinsic.

Problems.
- Continuance of life.
- Preservation of function.
- Duration of the case.
- Future condition.

IV. THERAPEUTICS.

All measures, of whatever kind, for cure or relief.

Palliative.
- Anodynes.
- Artificial heat or cold.
- Stimulation.

Adjuvant.
- Poultices.
- Enemata.
- Position.
- Diet.
- Sanitation.

Medicinal (curative).
- Topical.
- Sub-cutaneous (or by injection).
- Olfaction.
- Internally.

Mechanical. { Splints. / Adhesive straps. / Retentive apparatus.

Instrumental.—All kinds of surgical operation.

V. SURGICAL ANESTHESIA.

"Anesthesia," loss of feeling.

Earliest attempts, tobacco-clysters, intoxication, cold, pressure.

May be (*a*) *General.* (*b*) *Local.*

(*a*) GENERAL:

Mortality in surgical practice since introduction relatively increased, actually diminished. Number and variety of operations multiplied.

Recognized agents:

1. Nitrous Oxide gas—(N_2O. s.g. 1.527). Davy, 1800. Wells, 1844. Limited range of application.

2. Sulphuric Ether—($C_4H_{10}O$. s.g. 0.713.) Matthews, 1824. Woolston, 1836. Morton, 1846.

Tests. { Oils, stain paper. / Water, less inflammable; slow evaporation.

Cardiac stimulant.

Dangers—Remote { Renal lesions. / Bronchial and pulmonary lesions.

Chloroform—($CH Cl_3$. s.g. 1.497). Simpson, 1847.

Tests. { Alchohol—Drop in water. / Oils—Sulph. acid—evaporation on hand. / Ether—Inflammable.

Cardiac depressant.

Danger. Immediate { Coma (cerebral), too rapid administration / Syncope (heart), overdose. / Apnœa (lungs), too little air. / Shock, insufficient dose.

4. London (Harley's) Mixture—A_1. C_2. E_3.

Selection of agent depends upon { Tissue—Ether for perineum. / Heart—Ether for weak heart. / Age—Weak heart (ether)). Weak vessels (chloroform). / Urgency—Chloroform rapid; ether slow. / Bodily condition—Ether bad, in renal or pulmonary cases.

Phenomena of Anesthesia due to Anæmia (?), effects on protoplasm.

Symptoms in order.
- Cerebro-spinal—Lost reflexes.
- Ganglionic; life ceases.

Symptoms—3 Stages.
- Local irritation—Eyes, nose, air passages.
- Nervous excitement—Muscular activity.
- Unconscious. Abolished reflexes.

5. ADMINISTRATION.

Preparation of patient.
- Omit last meal.
- Loosen clothing, neck, chest, waist.
- Vasaline on nose, chin, cheeks.
- See that bowels and bladder are empty.

Administrator.
- Selected anesthetic, and second choice.
- Amyl nitrite.
- Hypodermic syringe, charged with brandy.
- Toothed forceps.
- Tin basin, for possible vomiting.
- Inhaler
  - Ether.
  - Chloroform.

Administration
- Commence slowly. Chloroform much air.
- No pressure on abdomen or chest.
- Attend to breathing.
- Signs of complete anesthesia.
  - Muscular relaxation
  - Insensitive sclerotic
  - Reflexes abolished.

Narcosis.

COMA.
- Pale (?) face; Eyes open.
- Stertorous breathing.
- Slow pulse; small.

→ Lower head; cold water to face, ammonia.

SYNCOPE.
- Pale face—eyes shut.
- Small breathing.
- Small pulse: imperceptible

→ Amyl nitrite. Brandy injections. Heat over heart. Electricity.

APNŒA.
- Dark, or livid face, eyes open (?)
- Fluttering pulse.
- Arrested breathing.

→ Artificial respiration. Pull tongue forward. Examine throat.

Sequelæ.
- Bodily restlessness.
- Nausea; vomiting. *Nux Vom.*, *Ipec.*
- Headache. *Nux Vom.*

(*b*) LOCAL ANESTHESIA.

Limited range of application.

Congelation.
- Ice (or snow) and salt. (Arnott.)
- Rhigolene (Bigelow).
- Ether, vaporized.

Objections. { Uncertain extent.
Danger to tissues.

Cocoaine (Hydrochlorate) $C_{17}H_{21}NO_4HCL$.

Solution—5 to 10 (or more) per cent.
Crystals.
Hypodermic—Instilation. Absorption.

Objection. { Establishes a "cocaine habit."
Said to favor hæmorrhage.
May modify repair.

VI. IRRITATION.

On border line of pathology.

Physiology—Orderly working of vital processes.

Pathology—Disorderly phyisiology.

Pathological (morbid) anatomy—consequences of morbid action; tissue changes.

Irritation, exaltation of function without tissue change { Phosphenes. Tinitus aurium. Pyrosis.

Commencement of all morbid action.

Physiological { Sleep. Functional rest.

Pathological. Permanent { Too frequent irritation. Too intense irritation. Specific irritant,

Remedy (typical), *Aconite.*

2. SYMPATHY—allied to *irritation.* (Reflex pain.) Phenomena remote from point of irritation.

Due to { Continuity of structure—Vesical calculi, itching of meatus.
Contiguity of structure—Gall-stone colic, diaphram spasm.
Similar structure—Parotitis—orchitis (metastasis).
Similar nerve supply—Facial neuralgia—odontalgia.

VII. ANÆMIA.

Poverty of blood. { Quantity. Quality.

Function of blood. { Excitant to function—Stimulant.
Repair waste—Nutritive.
Remove waste—Excretory.

Depends upon perfection. { Manufacture. Circulation.

(1.) Anæmia—general. (2) Ischæmia—local.

(1) ANÆMIA.

(*a*) Physiological—Functional rest—sleep.
(*b*) Pathalogical—Defects in manufacture—chlorosis.
(*c*) Surgical—Loss from hæmorrhage.

(*b*) PATHOLOGICAL ANÆMIA, systemic.
- Leucocythæmia.
- Macrocythæmia.
- Microcythæmia.

Symptoms.
- Decoloration.
- Lowered temperature.
- Disordered function.
  - Nutrition.
  - Excretion.
- Weak pulse—(slow or rapid).
- Œdema.

Treatment.
- Medicinal.
  - *Arsenic.*
  - *China off.*, restore production.
  - *Ferrum.*
  - *Sulphur.*
- Hygienic.
  - Diet—Nutritive, assimilable.
  - Exercise.
  - Temperature and clothing.

(*c*) SURGICAL ANÆMIA—Traumatism.

Symptoms.
- As above, and
- Disordered mind.
- Ringing in ears.
- Dimness of sight.
- Prostration.

Treatment.
- Stimulation.
- *China*, to hasten reproduction.
- Position of body.

Transfusion.
- Auto-transfusion.
  - Position of extremities.
  - Stroking towards centres.
  - Esmarch's bandage.
- Mediate.
  - Defibrinated blood.
  - Milk.
  - Saline solution.
- Direct, from one to another.

(2) ISCHÆMIA. From pressure of tumors,
Displaced parts, as dislocations.
Ligature of vessels.
Of the viscera, as brain.

Treatment. Remove cause: favorable position: establish collateral circulation *vide* "anæmia."

VIII. HYPERÆMIA.

Over-supply of blood; excess in certain elements, relative or actual.

(1) Hyperæmia, local—(2) Plethora, general.

Physiological
- Occasional.
- Functional activity.
- Protest against irritant.
- Element in surgical repair.

Pathological.
- Continuous.
- Abnormal frequency.
  - Energy of irritant.
  - Frequency of irritant.
  - Character of irritant.

(1.) HYPERÆMIA:—

As semi-pathological, wholly surgical. Succeeds irritation.

Characters.
- Increased blood supply.
- Intensity of color.
- Rise of temperature (local).

Causation.
- Local irritation.
  - Primary contraction.
  - Secondary dilatation.
- Distant irritation—Primary dilatation.

To be non-pathological, parts concerned must return to normal condition. No structural loss, or lesion.

Typical remedy—*Aconite.*

(2) PLETHORA:

Non-surgical. Habit of body, due to habits of life.

IX. SURGICAL REPAIR.

Traumatism.

Lesion.
- Macroscopic.
- Microscopic.

Immediate effects of trauma
- Hæmorrhage.
- Separation of parts.
- Disintegration more or less.

Later consequences.
- Elimination of foreign material.
- Exudation of reparative material.
- Organization of plasma.

Surgical repair different from original organization—fills space, but only as a bond of union.

Biological cell—
- Protoplasm—Contractility: irritability, fibrilization.
- Cell-body.
- Nucleus.
- Nucleolus.
- Cell-wall.

Source of the cell. { Blood—Lymphatics. / Tissues of neighborhood.

Fate of the cell. { Duplication. / Progressive change of form. / Ultimate conversion into. { Fibres. / Epithelium.

Result, fibrous, connective tissue. Cicatrization (scarring).

Scar permanent—low organization. Contractile.

Misbehavior of scar. { Deep adhesion—*Silicea*. Subcutaneous division. / Undue contraction—*Silicea*. Plastic operations. / Too thin, weak. *Carbo Veg*. / Ulcerating—Abraded. *Fluoric Ac.*, *Silicea*. / Too thick—*Silicea*. Dissecting out.

Methods of repair: (1) Immediate union. (2) First intention. (3) Second intention (granulation). (4) Subcutaneous.

(1) Immediate union: "Process of negations"—No scar. *Acon.*, *Hyperic*.

(2) First Intention: Small scar—*Staph.*, (?) *Hyperic.*, *Acon*.

(3) Granulation: Fills a cavity. Heaps of cells (granulations); becomes vascular. Epithelium covers in, and completes—*Calendula*.

(4) Subcutaneous (under a scab): Exclusion of air; no granulations. Better than second intention. Practical reproduction of tissue.

Conditions desirable { No oil; dilutes lymph. / No water; carries away cells. / No disturbance; breaks down adhesions. / No air; modifies process. / Indicated remedy; secures material.

X. INFLAMMATION.

In all tongues means "heat," which is the prominent symptom.

A condition of exaggerated production, with deficient organization, always pathological. Acute. Chronic.

1. ACUTE INFLAMMATION:

(*a*) Semeiology: Objective { Redness. / Swelling.

Subjective { Pain. / Heat, also objective.

(1) Redness:—Not extravasation.

Due to { Increase of blood in the part. / Pigmentation from coloring matter.

Only a symptom in superficial inflammation.
Actual tint depends upon natural color of the part.
Equivalent—Discoloration.

(2) SWELLING: Due to { Increase of blood in part. / Exudation from vascular tension. / Pseudo-growth.

Degree depends upon { Tissue, as to consistency or texture. / Deep or superficial inflammation.

On a free surface, no swelling.
Equivalent—Exudation.

(3) PAIN:—Exalted sensibility.

Due to { Pressure on nerves. / Tension of nerves. / Inflamed nerves.

Motor tracks, no pain, but reflex phenomena.
Kind of pain determined by tissue-characters.
Degree of pain, dependsupon individual characters, kind of tissue and extent of inflammation.
Equivalent—Exaggerated function.

(4) HEAT:—Constant; no equivalent: essential symptom.
Objective and subjective.

Due to { Increased bloood supply. / Increased vital effort. } Waste: oxygenation

Highest temperature at focus: material contagion.

(*b*) PATHOLOGY: (1) Altered composition of the blood. (2) Modification in circulation of the blood. (3) Alterations in the tissues.

(1) Normal composition of blood { Fluid. / Solid { Free / Solution.

Functions of blood. { Nutritive. / Stimulating. / Depurative.

Essential to inflammation—increased plasticity.

(2) Mechanism of circulation. { Cardiac action / Resiliency of vessels. / Muscular irritability. / Gravitation.

Vascular tension; how established; how equalized.
Effect of vascular constriction—of dilatation.
Direct and remote irritation; how vessels are affected.

Vascular tension high, gives exudation. { Serous. / Albuminous. / Fibrinous.

Exudate always contains leucocytes.
Essential to inflammation—obstructed circulation.

(3) Manner in which migration is accomplished, and the consequences thereof.

(*c*) NATURAL HISTORY: Primary vascular contraction—secondary vascular dilatation—suppression of secretion—exaggerated secretion—slower circulation—stasis—exudation—migration of leucocytes—pseudo-growth—pain—heat—redness—swelling—fever.

(*d*) PROGNOSIS:

- Termination.
  - Resolution.
  - Suppuration.
  - Ulceration.
  - Gangrene.
- Future History.
  - Repetition.
  - Adhesion of near parts.
  - Structural degeneration.
  - Constructive morbid action.

(*e*) ETIOLOGY:

- Exciting.
  - Violence.
    - Mechanical.
    - Chemical.
  - Morbid products.
  - Nervous alterations.
  - Blood-changes.
    - Composition.
    - Irritants.
- Predisposing.
  - Devitalizing influences.
    - Cold.
    - Heat.
    - Stimulation.
    - Innervation.
    - Waste.
    - Innutrition.
  - Abnormal repair—chronic morbid action.
  - Retention of excreta.
  - Former inflammation.

(*f*) THERAPEUTICS:

Hygienic—Nutrition—environment—habits.
Adjuvant—Heat—cold—pressure—position.
Medicinal—Acon., Apis., Ars., Bell., Canth., Rhus.

2. CHRONIC INFLAMMATION.

Modified. Symptoms.

- Pain—small.
- Swelling—much.
- Redness—decoloration.
- Heat—small (sub-normal?)

Results. { Permanent tissue changes. / Unhealthy suppuration. / Systemic disturbances.

TREATMENT:

Nutrition usually of major importance.

Remedies: *Anti C.*, *Baryta C.*, *Calc C.*, *Sulph.*, and others.

XI. SUPPURATION.

A product of inflammation—A factor in surgical repair.

(1) PURULENT SECRETION: On a free surface; an element of repair: physiological unless excessive.

Normal (laudable) pus, bland, unctuous, tasteless, inodorous; color and consistency of cream. { Fluid—"Liquor puris"—Serum. / Solid—Pus corpuscle—Leucocyte.

Source of fluid, the blood. Corpuscles. { Blood. / Lymphatics. / Tissues

Pus-cell: at first amœboid; later dead (true pus-cell), fatty, granular.

Function of pus. { Pabulum for new tissues. / Protection from irritants in the air.

Represents the excess of reparative material.

Quality of repair indicated by pus. { Serous—weak repair. / Excoriating—destructive process. / Deficient—arrest of repair. / Bad odor—necrotic changes.

Closer apposition of wounds, less purulent secretion.

Remedies to maintain or restore normal characters.

Arsenic, Copious, bloody, thin, corroding, brown. *Bellad.*, Thick, yellow, bloody. *Calc C.*, Thin, milky, curdy, putrid. *Calend.*, Laudable, excessive. *Graphites*, Scanty, viscid, thin, smells like herring-brine. *Hepar S.*, scanty, bloody, corroding, smells like old cheese. *Iodine*, Enormous amount, laudable. *Pulsat.*, Copious, green, thick. *Silicea*, Brown, watery, or gelatinous, putrid. *Sulph.*, Thin, black, putrid.

(2) ABSCESS: Pus in a cavity, natural or artificial; usually from inflammation. Acute and chronic.

(*a*) ACUTE ABSCESS—Inflammatory. { Encysted. / Diffused. } Pyogenic membrane. { Feeble action. / Energetic action / Specific character.

Pus: serum—corpuscles—blood—tissue-detritus.

Symptoms—Rigors—pain—swelling—pointing—spontaneous discharge.

Diagnosis—Hernia—aneurysm—tumor.
Treatment:—Abort, early stage. *Merc V., Hep. S.*
Promote suppuration, later—*Hep. S.*, poultice
Evacuation—lancing—avoid scarring.

(*b*) Chronic Abscess—Strumous—chronic inflammation—often glandular—little pain—often cachexia.

Pus. { Curdy—*Calc C.*, / Milky—*Calc C., Lycop.* / Emphysematous—*Lycop.*, / Cheesy—*Calc C., Lach., Calc ph., Sulph.* / Chalky—*Baryta C.*, / Watery—*Merc.*, *Sil.*

Thick pyogenic membrane, or long sinuses or fistula.

When opened, exclude air. { Aspiration. / Under water.

Sinus: Subcutaneous track, in connective tissues, muscular interspaces; not opening on surface. Opening, pressure, to destroy pyogenic lining.

Fistula: A track from abcess to surface—Pyogenic lining destroyed before closing. Excision—incision—injection.

Boils: (Furuncle—Abcess nucleata).

Multiple acute abscess—cutaneous or mucous, mostly at roots of hair. Uncertain causation; often a "critical" eruption.

Arnica for disposition. *Hep S.* to hasten suppuration.

Sulph. to expel core. Lancing questionable benefit.

Felon: (Paronychia—Panaritum. Whitlow.)

Acute abscess about fingers (or toes) { Sub-cutaneous. / Sub-fascial. / Sub-periosteal.

Causation obscure—heat—cold—or traumatism.

Consequences serious. { Contractions. / Necrosis.

Abortive treatment—*Nit Ac.*, *Merc.*, *Hep S.*, *Iris vers.*, elastic pressure.

Incision early—*Hep S.*, *Sil.*,

XII. ULCERATION.

An open sore, usually a result of inflammation.

Obliteration of small vessels, giving { Increased waste, relative or actual. / Diminished repair, relative or actual.

Causes may be purely local, later general; or general from the first.

Traumatism, with imperfect repair. Sex—Age—Occupation.

Idiopathic. { Simple—Weak.
Indolent—Inflamed.

Symptomatic. { Sloughing—Irritable.
Hæmorrhagic—Varicose.

Specific: Carcinomatous—Syphillitic—Lupus, etc.

All varieties commence as *simple*, and return to that form.

Common characters: Areola, outline, margin, sides, floor, granulations, discharge, pain.

Modification of above in healing, and advancing.

TREATMENT: *General principles:* Improve nutrition, local and general. Equalize circulation, position and pressure. No topical treatment; remedy main item.

Special indications: Cell-grafting; plastic operations. Nüssbaum's operation; galvanism; possible amputation.

IDIOPATHIC ULCERATION.

Type.	Areola.	Outline.	Margin.	Sides.	Floor.	Granulation.	Discharge.	Pain.	Typical Remedy.
Simple.	Hyperæmic.	Oval, or circular.	Rounded, elevated.	Sloping inwards.		Firm, normal.	Laudable.	Slight.	*Calend.*
Weak.	Pink, and faint.	Oval, or circular.	Rounded high; everted.	Sloping inwards.	Flat, or	High, flabby, jelly-like.	None, or albuminous.	None; itching.	*Semper Teet. Alum., Kal B.*
Indolent.	Brown, scaley; adherent.	Irregular.	Flat, depressed.	Sloping inwards.	"Worm-eaten."	None; or scanty.	Scanty and putrid.	None: insensitive.	*Baryt., Sulph.*
Inflamed.	Red; inflammatory.	Irregular.	Depressed.	Vertical, or undermined.	Uneven, and slough.	Destroyed.	Bloody.	Much.	*Bell., Puls., Merc.*
SYMPTOMATIC ULCERATION.									
Sloughing.	Dark, or livid	Ragged.	Depressed.	Undermined.	Slough.	None.	Putrid, watery.	Burning, gnawing.	*Ars., Merc., Lach., Nit ac.*
Irritable.	Purple, or red	Circular.	Flat, sharp-cut.	Steep.	Dark: flat.	None.	Dark, thick, or thin.	Intense.	*Asaf., Bell., Merc., Cham., Hydrast., Tart, Em.*
Hæmorrhagic.	do	do	do	do	do	do	Bleeding at menstruation	do	*Ars., Car. V. Phos., Sil., Sulph.*

Varicose, any kind of ulcer, occurring in connection with varix.

XIII. MORTIFICATION.

Death of tissues in masses (ulceration a molecular (granular) disintegration). May be of inflammatory origin, morbid action, traumatism; essentially, obliteration of vessels of size.

Soft tissues, GANGRENE, acute or chronic; slough —sloughing.

Hard tissues, NECROSIS; sequestrum—exfoliation.

Mortified parts dead; thrown off—repair.

1. ACUTE GANGRENE: (Hot: Moist). Acute inflammation—Traumatism. Embolism of large vessel: pain: temperature falls: discoloration at distal points. Arterial traumatism, the same, but symptoms of hæmorrhage.

   Discoloration extends from distal points to point of obstruction: line of demarcation: pain at such line: parts swell, doughy, emphysematous: sloughing. Constitutional symptoms varying with extent and intensity.

   PROGNOSIS; Depends upon size of vessel, location of obstruction, causes, rapidity, and extent of tissue involved.

   TREATMENT: Establish collateral circulation: prevent extension: removal of sloughs; amputation? Remedies small value. *Arnica* in embolism; *Secale; Arsen.*

2. CHRONIC GANGRENE: (Dry. Cold. Senile.)

   Changes in blood-vessels—atheroma—calcification.

   Old people, in years or "habits."

   Discoloration near seat of obstruction, and extending to distal.

   Symptoms much as above, except: more pain: shrinking of parts, dry and mummified. Uncertain demarcation: constitutional symptoms severe.

   PROGNOSIS: Bad. Once commenced cannot tell where it will stop.

   TREATMENT: As above. *Secale*: *Arsen*, *Lach.*

   OF INTERNAL ORGANS: Only "rational" signs.

   DIAGNOSIS: Ecchymosis, history, temperature, pain, progress.

3. BED SORES:—Gangrenous ulceration of points of support.

   Anæmia (spinal), pressure, irritation from wet dressings.

   TREATMENT: Remove pressure; dryness; cleanliness; nutrition. *Arsenic.*, *Lach.*, galvanism, and as ULCERS in general.

4. PHAGADÆNA: (Hospital Gangrene).

   Rare in civil practice: old hospitals: squalid poor.

   Attacks wounds and ulcers. Rapid destructive inflammation.

   Points of gray slough, extends in all directions: areola œdematous, livid; outline more or less circular; edges everted, sharp; greenish gray tenacious slough; dirty, green, yellow, or brown discharge; sometimes hæmorrhage; pain burning, stinging, lancinating; fetor:

all tissues yield, blood vessels resist longest. Irritative fever: sometimes pyæmia. Sometimes black vesicles, bloody ichor, hot stinging; breaks and shows deep spreading ulcers (*Tart Em*). Sometimes a dirty-white, spongy, fungous slough.

TREATMENT: Cleanliness: ventilation: poultice—*Arsen.*, *Sulph. Ac.*, *Tart Em.*

5. CARBUNCLE: (Anthrax). Baccillus.

Gangrenous ulcer (?); debilitated, old people, on posterior surfaces; back of neck.

Inflammation, flat, circular, dusky-red, *slightly* raised, one to six inches in diameter. Becomes darker, separates at the edges, fissures; thin, scanty, discharge. Intense pain, and severe constitutional symptoms. Large slough—Slow repair.

PROGNOSIS: Grave in bad cases.

TREATMENT: No knife. Caustic potash: *Arsen.*, *Bell.*, *Rhus.*, *Lach.*

XIV. SURGICAL TOXÆMIA.

Toxic principle in the blood, from changes therein; or entrance of septic material from the body. Bacterial? Pyæmia. Septicæmia. Tetanus.

(1) PYÆMIA—(Purulent infection—Suppurative phlebitis?)

Chronic—Non-traumatic—Through blood.

SEMEIOLOGY:—Rigors, irregular; suppression of excretions; rapid emaciation and prostration; skin bronzed, dry or clammy; exhalations and excreta sweetish odor; tongue dry, brown, covered with sordes (also teeth); mental apathy; eyes dull; face brown; expression apathetic; dejecta scanty and offensive; *thermograph* "church spire;" extreme range, irregular; no relation to pulse or respiration.

PROGNOSIS:—Reserved—better when skin moist or warm; course rapid. Bad, when skin dry, clammy; course slow.

PATHOLOGY:—Multiple (metastatic) abscess: "thrombalosis," fibriniferous blood; coagulæ in veins; disintegration and dispersion; points of lodgment *foci* for suppuration, or secondary coagulæ, and extended dispersion. May become septicæmic.

TREATMENT:—Stimulation: nutrition: *Arsen.*, *Arnica*, *Lach.*, *Rhus.*

(2) SEPTICÆMIA:—(Blood poisoning—Surgical fever).

Acute—Traumatic—Through the absorbents.

SEMEIOLOGY:—Rigors, before fourth day: irregular if repeated: suppression of excretions; quick rise of temperature 102° –104°; dry skin, pungent; tympanitis, if abdominal or pelvic: may be

mental disturbance; vomiting? scanty or suppressed urine; bowels constipated, or diarrhœa; *thermograph* + in morning, small range, never below normal. Relation between pulse and temperature as in fevers.

PROGNOSIS:—Good if treatment commenced early; fair in all cases, except when treatment is commenced in last stages.

PATHOLOGY:—Suppression of discharge, "reversion;" excreting surfaces become absorbing; multiple abscess rare, suppuration usually localized. Septic cases may become pyæmic, but processes distinct.

TREATMENT:—*Aeon.*, at outset. *Arnica*, *Puls.*, *Arsen.*, *Rhus*. *Lach.*

(3) TETANUS: (See XXXV. NERVES.)

XV. TUMORS.

A new tissue; local redundancy; *cellular* structure, only a caricature of normal tissue. Not hypertrophy; nor hyperplasia. Effects on near parts:—Absorption, displacement, inclusion, infiltration.

ETIOLOGY: EXCITING CAUSES, traumatism of minor degrees; irritation constant, but not intense; inflammation of low grade; in all a *minor* lesion, just sufficient to excite hypernutrition.

PREDISPOSING CAUSES; *Heredity*, as furnishing a weak tissue.

Sex, as related to profound and repeated crises; as, in women, menstruation, pregnancy, lactation, etc., women giving more *cases* of tumor, men more varieties.

Age, the critical periods of life: *e. g.*, puberty and adolescence, giving heteralogous conditions; maturity, homologous; senility or menopause, teratoma.

Occupation, as inducing habitual irritation; fatty tumors on shoulders; cysts on hip, etc.

Mental conditions, isolation, grief, anxiety, mental depression, as in carcinoma.

Tissues, as parts frequently irritated: *e. g.*, breast due to lactation; other essential glands; stomach; border line between unlike tissues, as lips, etc.

Blastodermic theory of Monod and Arthraud:

True tumors, and inflammatory or trophic neoplasms.

True tumors.
1. Teratoma—all layers of blastoderm.
2. Mixed tumors, two layers of blastoderm.
3. Pure tumors, one layer of blastoderm.

Inflammatory or trophic neoplasms.
- Connective-tissue proliferation.
- Epithelial.
- Endothelial.

PATHOLOGY:—Originates in a local cellular activity, exaggerated repair, from various causes, as in abscess: unlike abscess, organization is fairly vigorous. Type of tumor depends upon predisposing factors, and grade of organization attained. All tumors, therefore, at first local. When becomes general, due to (*a*) dispersion of elements; (*b*) influence on other nutritive processes, depending on site. Organization in heteralogous and teratomatous growths, sooner or later ceases, and retrogression, or degeneration ensues. Recurrence due to (1) remaining tissue (2) dispersion (3) disorderly nutrition.

CLASSIFICATION:—Includes physical characters, gross and minute, as well as clinical history.

DENSITY: Solid the normal type.

Cysts.
- Natural.
  - Occlusion, *e. g.*, ranula, sebaceous cysts.
  - Inclusion, *e. g.*, ovarian cysts, hydrocele.
- Artificial.
  - Cystic degeneration of solid tumors.
  - Accumulation in connective tissue spaces.
- Dermoid.
  - Fœtal inclusion.
  - Blastodermic involution.
- Contents.
  - Mucoid.
  - Serous.
  - Sanguineous.
  - Atheromatous, etc.

ATTACHMENT: Sessile, a broad base.

Pedunculated, a narrow neck; commences sessile.

RELATIONS; Encapsulated (encysted).
- *Natural*, as a gland capsule.
- *Adventitious*, compression, and condensation of connective tissues, or new formation.

Diffused, no demarcation from normal tissue.

FORM, round, square, irregular, nodulated, smooth.

CLINICAL (macroscopic) characters, refers to gross appearances, manner of growth, and clinical history.

(1) NON-MALIGNANT (benign, innocent). Most cysts; middle life; irregular, slow growth; no degeneration, as a rule; single; encysted; painless; no implication of near parts; no secondary deposits; no cachexia; do not imperil life: commencement of all tumors; traumatic, inflammatory.

(2) SEMI-MALIGNANT (Sarcoma). Young subjects (all periods); rapid, or intermittent growth; tendency to ulceration; multiple, simultaneous or successive; diffused (encysted?); painful; infiltrates near parts; dispersion of elements; cachexia, in some cases; threatens life; degeneration from benign forms, or unknown; recurrence in the scar, reproduction of tumor or ulceration.

(3) MALIGNANT (Carcinoma). Past middle life; slow, steady growth (some forms rapid); tendency to ulceration; multiple, successive; diffused; painful; infiltrates and displaces near parts; dispersion; cachexia; recurrence, if in scar ulceration, if remote a tumor of other type; destroys life; a degeneration of innocent forms, or unknown. Primary—Secondary.

ANATOMICAL (microscopical—histological). Refers to minute structure—Cellular, not finished tissue. Stroma—trabeculæ. Not conclusive for diagnosis. Morphology uncertain guide.

(1) HOMOLOGOUS (Typical):—Elements resemble tissues of the part. Correspond to BENIGN tumors. TYPES:—Fibroma, papilloma, lipoma, condyloma, steatoma, nearly all the cysts.

(2) HETERALOGOUS (Atypical as to matrix):—Elements like fœtal or embryonic tissue; loosely cellular; corresponds to *semi-malignant* tumors. TYPES:—Epithelioma; enchondroma: spindle-celled, giant-celled, round-celled, and mixed-celled sarcoma. Malignancy in proportion to lowness of organization.

(3) TERATOMA (Atypical as to the organism): Multiplicity of cell-forms; free nuclei; large trabeculæ—Corresponds to *malignant* tumors—TYPES:—Scirrhus, encephaloid, colloid, melanosis.

PROGNOSIS:—Good in all forms of tumor, if removed during "local" stage; doubtful after implication of near parts; bad after dispersion

TREATMENT:—Always removal of all forms of tumor, before near parts are implicated; after this stage, removal with all near parts accessible. Remedies *have* cured all forms of tumor; uncertainty forbids trusting them, as the favorable moment may be lost, and cannot be regained. Electrolysis, in inoperable cases, or Iodide of lime, *Secale.*, *Baryta C.*, etc.

XVI. VENEREAL CONTAGION.

Importance of; moral—physical consequences. Influence on surgical repair. Either specific, or non-specific. *Specific*—Invariable clinical history; three stages (incubation, efflorescence, decline); followed by sequelæ; products inoculable; prophylactic.

Contagion, immediate—mediate. "Venereal" and "specific" not synonymous.

1. URETHRITIS: NON-SPECIFIC:—Inflammation of urethra from cold, violence, vesical diseases, contact with irritating material (leucorrhea), and the like. Commences deep in urethra, extending towards meatus; ardor urinæ; stranguary; superficial inflammation; no incubation, nor sequelæ; discharge mucus. *Acon.*, *Bell.*, *Canth.*, *Arsenic*, *Puls.*, *Merc.*

In women, vaginitis, vulvitis, or urethritis. Care in diagnosis, at same time *very* difficult.

2. SPECIFIC URETHRITIS: (Gonorrhœa, Clap):—Most venereal of all. Bacterial origin? Three stages.

(1) *Incubation*: From four to eight days. Arg. Nit. 5% solution.

(2) *Acute Inflammatory* (Efflorescence);—continues fourteen days. Commences at meatus, extending backwards; ardor urinæ; stranguary; *deep* inflammation, parts leather-like; discharge usually abundant, muco-purulent; chordee. *Apis.*, *Arsen.*, *Cann S.*, *Bell.*, *Puls.*, *Merc.*, *Petros.*, *Gelsem.*, no local treatment.

Complications—*Bubo*, inflammatory; single. Early evacuation—*Hep S.*,

Orchitis, *Aur M.*, *Phytol.*, *Coni.*, *Puls.*

(3) *Chronic inflammatory* (Gleet). Indefinite duration. Symptoms gradually abate; discharge in modified form continues. *Arg Nit.*, *Hydrast.*, *Sulph.*, *Merc.*, Steel sounds.

(4) *Sequelæ:* Rheumatism, not peculiar. Ophthalmia, to "Eye and Ear."

Stricture (urethral):—*Spasmodic*, not necessarily venereal. *Bell.*, *Nux Vom.*, *Plumb.*

Organic, cicatricial (ulceration); plastic deposits. Large or small calibre; loss of muscularity rather than diminished calibre. Consequences serious—perineal abscess (and fistula)—hernia—aneurysm. *Diagnosis*, bulbous sounds. *Treatment*, dilatation (slow or rapid); divulsion; urethrotomy (external, internal); *Silicea* in all. To restore muscularity.

In women gonorrhœa much more serious, from extent of surface involved, and danger of passing through tubes to peritoneum; salpingitis, etc. Diagnosis very difficult, but important.

Is gonorrhœa specific?

3. CHANCROID:—Less venereal than gonorrhœa. Non-specific. No incubation; first sign within a few hours after inoculation. Inflamed spots, becoming pustular; ulceration deep, ragged, profuse discharge, painful; pus auto-inoculable; form ulcers wherever pus finds lodgment, hence ulcers multiple and successive. Induration inflammatory. *Bubo*, single, inflammatory; pus likewise auto-inoculable. No prophylaxis; no sequelæ; scar depressed. Acids to destroy virus; *Merc.*, *Calend*, *Nit Ac.*, *Ars.*, *Lach.*, *Hep S.*

4. SYPHILIS: Most serious of all forms of morbid action; old as humanity. Potency of virus not a question of quantity. Typically specific. Primary—Secondary—Tertiary—Congenital.

(*a*) Primary Syphilis:—Least venereal, most specific.

Incubation: Fourteen days to weeks; one case seventy days.

Efflorescence: Papule, vesicle, or abrasion: ulceration, induration: bubo.

(1) *Ulcer* small, insignificant, dry, painless; either a mere abrasion or funnel-shaped. Continues four to fourteen days; single; if multiple, simultaneous. Hetero-inoculable.

(2) INDURATION, typical, sharply defined, like a shot under the skin, or a thin parchment; coextensive with ulcer, which it precedes and outlasts.

(3) BUBO, multiple, like a chain of beads; indolent, uninflamed, does not suppurate; sometimes softens, and discharges gluey material; materies morbi?

(4) DECLINE. All symptoms disappear. No scar.
Merc Corr., or *Viv.* Probably incurable.

(*b*) SECONDARY SYPHILIS: from six months to a year after primary.
Secretions all syphilitic. Mucous and cutaneous surfaces. Roseola—alopecia—ulcers in mouth (plaques) horse-shoe shapes; iritis —*Merc V.*, *Stilling.*, *Sarsap.*, *Jacaranda*, *Nit ac.*, *Sulph ac.*, *Kal iod.*

(*c*) TERTIARY SYPHILIS: one, to two or more years after secondary.
Bones, hard tissues, viscera.
Gummata—necrosis—*Aur Met.*, *Sarsap.*, *Sil.*, *Merc V.*

(*d*) CONGENTIAL SYPHILIS: not infantile.
Syphilitic either sterile, or prone to abortion. Poorly nourished child, aged look, slow eruption of teeth; Hutchinson's teeth; hairless; skin diseases of various kinds; rickets, etc. See PRACTICE and OBSTETRICS.

XVII. HÆMORRHAGE.

A most dangerous occurrence. Economy of blood always good surgery.

PASSIVE:—Spontaneous—without traumatism—Epistaxis and menorrhagia a type: often a relief from plethora or hyperæmia. *Carbo V.*, in large drops. *Arnica*, as from a sponge; *Erigeron Can.*, free stream; *Croc Sat.*, black, tar-like. *Bell.*, gushing, hot. *Phosph.*, almost like active; *Sabina*, steady flow. *China off.*, for consequences.

Hæmorrhagic diathesis (hæmophilæ). Causes problematical. *Phos.*

ACTIVE—Lesions of vessels. Either traumatic or morbid conditions. May be open (external), concealed (internal); capillary, venous, arterial, parenchymatous; primary, secondary.

(*a*) OPEN, on a free surface, "open" to inspection; symptoms as below; of less magnitude than "concealed" on account of accessibility.

(*b*) CONCEALED, into cavities. Dangerous from obscurity and inaccessibility. Symptoms as below, with *sensation of flowing*, and possible signs in excretion, *e. g.*: renal or vesical; pulmonary; gastric or intestinal.

(*c*) CAPILLARY, small wounds, superficial; welling up, drops coalescing; dangerous on account of insidiousness; much blood lost insensibly.

(*d*) VENOUS, blood dark-colored, flows in a steady stream, diminished by distal pressure, relatively slight prostration. May be, proximal bleeding, recurrent; pulsatile, from nearness to artery; bright-color, from extreme loss.

(*e*) ARTERIAL, bright-colored, flows in jets (saltatory), proximal pressure controls; much, and rapid prostration. May be dark, and steady flow, as extreme hæmorrhage empties vessels, and depresses heart; distal hæmorrhage, recurrent.

(*f*) PARENCHYMATOUS, as in morbid tissues, or viscera, where vessels are non-retractile—very dangerous.

(*g*.) PRIMARY HÆMORRHAGE, that which immediately ensues.

(*h*) SECONDARY, comes on after primary ceases, from washing out of clot; ulceration of vessel; separation of eschar, or ligatured end; loosening of ligature prematurely. Before the fourteenth day.

SEMEIOLOGY AND CONSEQUENCES:—Depends upon amount, source, and kind; gravity in proportion to nearness to lungs or heart: prostration rapid, dimness of sight, ringing in ears, lowered temperature, syncope. In last stages convulsions. Later conditions those of anæmia.

HÆMOSTASIS:—Arrest of hæmorrhage, and repair of lesion. Natural—Artificial.

(*a*) NATURAL HÆMOSTASIS:—Formation of clot. { Quietness, particularly of part. / Position. / Retraction of vessel.

Collateral Circulation:—Clot reaches to first opening: blood directed into new channel; old vessel obliterated.

(*d*) ARTIFICIAL HÆMOSTASIS:—Temporary—Permanent.

Temporary, tourniquet, and other compressors.

Permanent, styptics—compression—occlusion.

Styptics. { Astringent. { Air. / Water (hot? or cold?) / Weak acids, Cupric Sulph, Alum, etc. } / Escharotics. { Per sulph iron (powder or solution). / Strong acids. / Actual (potential) cautery. }

Objections, danger of secondary hæmorrhage or septic infection.

Compression. { Digital. / Mechanical. { Esmarch's bandage. / Compressors. / Tourniquet. / Forced flexion. } }

Objections as above, and extreme painfulness.

Occlusion { Ligature { Continuity. / In the wound. } (Double.) } Material.
Accupressure—four methods.
Torsion.

XVIII. SHOCK AND COLLAPSE.

Mental and physical (nervous) prostration, due to injury; similar to hæmorrhage—compression or concussion of the brain (q. v.) or intoxication.

PRIMARY (immediate) SHOCK:—Varies from slight mental confusion to profound insensibility. *Typical symptoms*:—Low temperature, weak pulse, pale face, eyes half open, muscles relaxed, shallow or sighing respiration, sphincters often paralyzed. Severe cases may be speedy death. Autopsy gives no adequate cause; mental emotions (fright, grief, even joy), have caused fatal shock. Heart may be found spasmodically contracted (or dilated and gorged with blood). Probably in fatal cases, at least from mental emotion, some chronic cardiac lesion. Reaction febrile, "traumatic fever."

Indefinite relation between *degree* of injury, and shock; unexpected accident gives more severe shock. Personality—sex.

DIAGNOSIS:—

SHOCK.	Symptoms come on at once.	Eyes half open; face pale.	Breathing shallow; sighing.	Pulse, weak slow.	Coma, in varying degrees.
CONCUSSION OF THE BRAIN.	At once.	Pupils dilated, face pale, eyes open.	Feeble; slow.	Small.	Answers when spoken to loudly.
COMPRESSION OF THE BRAIN.	Slowly.	Pupils immovable; eyes shut; face livid purple.	Stertorous.	Full; soft, slow.	Does not respond to irritation.
IRRITATION OF THE BRAIN.	Slowly.	Pupils contracted; eyes *tight* shut; face distorted	Normal.	Quick?	Twisting and curling about; answering, but peevish.

Intoxication gives same as above, but *smell of alcohol.*

TREATMENT: *Moral*, reassurance—reproving—ridicule.

Adjuvant, warmth—position—diffusible stimuli—no alcohol by mouth.

Medicinal, by mouth, olfaction, or subcutaneous injection. *Arnica*, relaxed sphincters—*Camph.*, low temperature, pungent hot breath —*Veratr Alb.*, cold, even tongue and breath; tongue trembling. *Acon.*, reactionary fever.

SECONDARY (remote) shock:—Some hours, or days, after injury, when weak from loss of blood, confinement, etc.; sudden giving way; often in military practice, or where accident was anticipated, and nervous tension to meet it. Prognosis not good. Otherwise as above, particularly stimulation.

XIX. EFFECTS OF HEAT AND COLD.

In essentials extremes of temperature give similar conditions, on the theory of "equalization," heat passing into or out of the part. Cold less extreme than heat, because no carbonization.

1. COLD:—Congelation of tissues; devitalized; depth and extent problematical, but determines the result.

(*a*) CHILBLAINS (pernio): Superficial, parts peel off, leaving peculiar sensitiveness of deeper parts. Burning, stinging, particularly in moist, warm weather after cold; damp cold, rather than dry. *Mur Ac.*, blueness. *Puls.*, worse from warmth, in spring and fall. *Agar Mus.*, tingling. *Anti C.*, varnished. *Petrol.*, intense itching. *Sil.*, excoriation. *Rhus.*, vessication. *Apis.*, œdema. *Arsen.*, intense burning. *Sulph.*, chronic, formications.

(*b*) FROST-BITE:—Usually prolonged cold-exposure followed by sudden thaw. Three degrees; cutaneous—soft parts—whole extremity. Parts absolutely frozen, hopelessly dead. *Sudden* freezing, skin mottled; *slow*, white. Frozen parts, hard, incompressible; cold, "frosty," insensitive; pain in living tissues on boundary. In extreme cases sopor, apnœa.

PROGNOSIS: Depends upon extent of freezing, and time exposed to cold; sloughing, always a dangerous process; instrumental aid not tolerated.

TREATMENT: Carry patient into shelter, no fire; remove clothing from part, *with care*, cutting it away; pile on snow, if not at hand cold water; when pliable, friction; *Arsen.*, *Carbo V.*, for extreme pain on reaction; or strong coffee: when circulation restored, rub *dry*, wrap in cotton (or warm, dry clothing). If circulation not restored, sloughing ensues; poultices; not smallest shred to be cut: amputation, when demarcation indicated, or "leaving a joint" between. Natural stump conical, sensitive; often protruding bone. "Supporting" treatment during sloughing.

2. HEAT. Destruction of tissue by carbonization, or an equivalent: *e. g. Scald.* from moist heat, as boiling liquids, or steam. *Burn* dry heat, direct or radiant. Burnt tissue (eschar), hopelessly dead. Five degrees.

1st degree, a sort of erythema, from radiant heat; sun; when very extensive, may modify skin function sufficient to cause effusions in serous cavities.

2d degree, blistering of skin from heated contact; gas explosions, powder, flash-burns, scalds of mouth and pharnyx.

3d degree, complete destruction of integument (carbonization, or boiling), great shock and remote consequences proportionate to extent of surface (*vide post*). Acids, alkalies, or boiling fluids in mouth, give immediate peril.

4th degree, destruction of all soft parts; results dependent on extent. Immediate separation of scalded parts.

5th degree, complete destruction of a part, all tissues.

SYMPTOMS: In three stages: (1) *Collapse*, shock prominent; at first intense *heat*, then coldness; pain; stiffness; thirst. From a few moments to twenty-four hours. (2) *Inflammation*, local; fever, with exacerbation of all symptoms. Vomiting, dyspnœa, coma, diuresis, diarrhœa, according to location and extent. Often die in this state suddenly. (3) *Exhaustion*, often fatal, either from reaction, from fever, or visceral complications of various kinds.

CONSEQUENCES: LOCAL:—Scarring usually vicious: ulceration; gangrene. *Scalds* of mouth and pharynx, œdema of glottis: stenosis or atresia of esophagus, etc.

GENERAL: Exudations, arachnoid—pleural—endocardial—peritoneal—duodenal perforations: intestinal hæmorrhage; renal lesions.

Death from shock, secondary hæmorrhage; visceral lesions; erysipelas; tetanus; toxæmia.

PROGNOSIS; Governed more by superficial extent than depth, as a rule: fatal when one-third of surface is burned; deep burns immediate symptoms more severe.

TREATMENT:—Pain: *Urt Ur.*, *Canth.*, *Arg Nit.*, (sol)., *Carb Soda.* Vesicles, puncture carefully. Remove detached and dead tissue—exclude air—guard against adhesions, and contractions; question of amputation. Sloughs and eschars detached, treat as other wounds. Visceral legions, according to indications, *e. g.* Effusions, *Apis.*, *Ars.*, *Hell.*, Hæmorrhage, *Phos.*, *Bell.*, *Puls.*, Erysipelas, *Ars.*, *Rhus.*, *Bell.*, Toxæmia, *Ars.*, *Lach.*, Tetanus, *Hyperic.*, *Bell.*, *Stram.*, *Nux Vom.*, *Led.*, *Cup Ac.*

XX. CONTUSIONS AND WOUNDS.

1. CONTUSIONS (bruise):—Injury to soft parts by squeezing force: lesions subcutaneous; no communication with the air. Three degrees.

(1) *Cutaneous*, subcutaneous; minimum injury to tissue.

(2) *Soft-parts* generally, muscles, vessels, and nerves.

(3) *Complete* crushing of whole part, pulpyfying soft parts, and comminuting bones.

(4) *Visceral*, from transmitted force, or vibrations.

SYMPTOMS:—*Ecchymosis*, discoloration, due to rupture of vessels, extravasation into tissues; swelling; discoloration goes through changes of color, due to changes in blood: part absorbed early (serum), rest undergoes fatty change, emulsion, and absorbed. Hæmorrhage minor degree, from manner of division of vessels; may be fatal, in third degree, or if vessels are large. Pain, moderate, from the injury to the nerves; due to tension from the swelling. *Visceral* contusions obscure semeiology; most constant, feeling of weight.

DIAGNOSIS:—*Gangrene*, low temperature, insensibility, previous history. *Suggilation* (hypostasis) — post-mortem changes — no staining of near parts; sharp definition. *Melanosis*, chronic.

TREATMENT:—In *minor degrees: Arn.*, Ordinary contusion. *Con Mac.*, little ecchymosis, stony hardness and weight. *Ham V.*, no congulation, blood remains fluid (hæmatoma). In *major degrees*, with rupture of large vessels, nerves, and comminution of bones, amputation be considered. Hæmorrhage severe, ligature vessels; general rule, avoid opening integument.

2. WOUNDS, IN GENERAL:—A division of soft parts, by crushing, tearing, cutting, or piercing instruments. All wounds a tearing of tissues; parts put on stretch, and give way when maximum tension is reached. Symptoms, therefore, depend upon kind of force, and nature of tissue; common to all wounds, as follows:—

DISPARTITION:—Separation of sides, depends on elasticity of tissue, muscularity; the direction of wound, with reference to muscular fibres; the manner of injury, whether causes innervation or not.

HEMORRHAGE:—Governed by size, number and kind of vessels; how injured, great or little tension. Primary, as a rule; may be secondary under certain conditions. The most important symptom.

PAIN:—Usually less than size of wound would suggest, as nerve-fibres divided. Mostly proximal, and more after repair commences: often a stiffness, followed by smarting, becoming aching. Largely a personal matter.

SHOCK:—An element in all wounds; maximum degrees in concussive injuries, or visceral lesions. Simulates hæmorrhage.

REPAIR:—Depends upon freedom from foreign material, closeness of apposition, remedial treatment, and freedom from irritation.

TREATMENT:—Arrest hæmorrhage AT ONCE. Then cleansing, avoiding harshness: coaptation (sutures—straps); first dressing *Hyperic.*, to the wound, on cotton; bandage. *Hyperic.*, internally, for twenty-four hours, later, remedy to promote repair, as indicated. Dressings not to be removed as long as effectual, and not soiled; no lotions, or cerates. Severe wounds, involving large vessels or nerves, may call for amputation. Modify treatment according to nature of injury, but no "germicides," "antiseptics," or chemical contact whatever.

INCISED WOUNDS:—Smooth-cutting instrument. The typical wound. *Dispartition* governed by manner of division of muscular fibres. *Hæmorrhage*, usually primary. *Pain*, insignificant as a rule, depending on sensitiveness of patients, and kind of injury to nerves, *i. e.*, complete or partial division. *Shock* slight, as a rule. *Treatment*, as above, position to relieve tension, remedy, after *Hyperic.*, *Staph.*

CONTUSED WOUNDS:—Blunt weapon, crushing the tissues; varies from a slight injury, to division of a member by machinery, or a car-wheel. General conditions of contusion, with open wound added. *Dispartition* slight, contusion abolishes contractility. *Hæmorrhage*, primary slight, secondary common. *Pain* small. *Shock* severe. *Repair*, preliminary sloughing of margins, and devitalized tissue; process slow, and danger of sepsis. *Treatment*, no attempt at permanent closure, until sloughing completed, simply adhesive straps and position; no sutures. Amputation in grave cases. After shock, *Arnica*, later *Calend.*

LACERATED WOUNDS:—A tearing injury, as from a pin, to tearing or twisting off a whole extremity by machinery. An exceedingly grave injury, as tissues tear under different degrees of tension; muscles may be torn out, or vessels divided, high above skin-wound. *Dispartition* small, as in contused wounds. *Hæmorrhage* mostly secondary. *Pain* slight in large wounds, much in small. *Shock* extreme. *Repair*, as in contused wounds, slow; elimination of dead tissue. *Treatment*, expectant; cannot always tell extent of lesion. Shock the first care: then prepare for secondary hæmorrhage, tetanus (*Cupr Ac.*, *Bell.*), sepsis. Amputation? When elimination complete, *Calend.*, and as good coaptation as possible, by straps and position.

PUNCTURED WOUNDS: Piercing weapons, blunt, sharp, or cutting-edged: depth greater than superficial extent; from needle or awl-punctures, to bayonets, sword, or knife stab-wounds. Compound

character, *contused* as from nails or blunt weapons: *incised* as from knives; pure *puncture*, where point is sharp, as needle, no cutting edge.

(*a*) *Penetrating*, when cavities are entered, danger of visceral lesion.

(*b*) *Non-penetrating*, cavities not entered.

Dispartition small. Wound not in continuity through tissues of differing elasticity or resistance. "Faults." *Hæmorrhage*, as a rule, small, vessels gliding aside; often secondary. *Pain* considerable, sometimes violent. *Shock* marked when viscera are injured. *Repair* depending on character; slow in contused and incised; rapid in pure puncture. *Treatment*, determine penetration; if so, probable lesion to viscera. Prepare for secondary hæmorrhage, and enquire for concealed bleeding. Heal from bottom, "tents," etc. Tetanus, *Led.*, coldness *Stram.*, subsultus. *Cupr Ac.*, sub-sternal pain. *Bell.*, trismus. *Hyperic.*, the typical remedy.

Poisoned wounds:—Of any character complicated by the injection of some kind of poison; interest solely from the poison complication.

(*a*) Chemical, as in laboratories, from explosion; as to the wound often of small moment, the tissue not taking up much, if any, of the material. *Treatment* as other wounds of similar general characters, with antidotal treatment added.

(*b*) Envenomed wounds, as from serpents, spiders, and various insects. Many of the "venoms" a simple irritant, or develope septic conditions. As to insects, ordinarily trivial, and purely local; in fauces may become dangerous, from œdema of glottis, etc. Ammonia, olive oil, or pure water, often sufficient.

Snake-bites, question as to venomous nature of bite. First, establish the probability of an injection of venom, determined by distance of spring; the season as influencing activity of the snake. Evidence, as to American species, seems to disprove the specificity of venom: symptoms either sepsis or tetanus. Tropical, particularly Indian serpents, different testimony. Habit of body, and mental characters, may influence result. *Treatment*, gall of serpent (Higgin's *Ophidia*), diffusible stimuli, radiated heat. Iodine, ligature, excision. Alcohol, doubtful value.

(*c*) Altered secretions, as in bites of rabid animals. Phenomena contradictory as to specificity; effects explainable on theory of sepsis and mental states. Involves, first, the condition of dog (or other animal): *Rabies* in three stages.—*Prodromal*, sullen, shuns company. *Frenzy*, rushes off in a straight line, biting at all moving objects. *Convulsions*, tonic and clonic spasms, and death. In man, must be an abrasion or bite, and on uncovered parts. *Hydrophobia* in three stages. *Prodromal* no symptoms, and

phenomenal length; other stages as in rabies, modified; hydrophobia being spasms of faucial muscles from contact with the fluid, and the erethism that makes intolerable sound and motion. Symptoms those of tetanus. Supposed by many to be hysteria, tetanus, sepsis, or all three combined. *Treatment* as in above conditions; *Bell., Hyos, Stram,. Xanth Spir.* Avoid rude restraint, currents of air, noise or flashes of light.

(*d*) *Septic infection:*—Dissecting wounds. In dissecting room, with putrefied material, if any symptoms more than local, a pure septicæmia; or from the injecting material, arsenic, chloride of zinc, etc. At *post mortems*, made before putrefaction commences, ptomaine poisoning, giving pyæmic consequences. Operations for necrosis, injuries from spiculæ of bone, purely septic; danger greatest from *small* wounds, as needle punctures, etc. *Treatment* as in septicæmia, and pyæmia.

Gun-shot wounds:—Made by explosive force; boiler explosions gives a "gun-shot" wound. Injury complex, contused, lacerated, punctured, with burning, and often of much foreign material. Powder, or explosion-wounds, no missile, yet enormous lesions.

Direct, missile comes directly to part struck, not diverted, or characters changed by intervening objects. Gives compound fracture.

Indirect, missile broken, changed in form or character, by intervening obstacles, or wound from fragments of same (wood, stone, sand); gives multiple wounds, and simple, or comminuted fracture.

Penetrating when cavity is opened; possible visceral lesion, or concealed hæmorrhage.

Non-penetrating, cavity not opened; injury parietal.

Perforating, passes through the part or body, giving wound of entrance and exit.

Modified injury by shape of missile—size—speed—distance passed over—and structure of part hit, *e. g.*, osseous or muscular tissue.

Fate of missile, important for prognosis: lodged—split—deflected—rebounded.

Symptoms—Wound of entrance: of exit. Generally contused characters.

Hæmorrhage mostly secondary, except in vessels of first magnitude.

Pain, primarily slight, later severe; lodgment of missile influences; soft-parts a "switch" and burning; hard-parts, jarring, vibration. *Shock* in military practice mostly remote; severe when penetrating, with visceral lesions; simulates hæmorrhage. *Visceral lesions:*—Lungs, frothy blood. Stomach, hæmatamesis, or contents in the wound. Intestines, tympanitis; contents from the wound. Kidneys or bladder, hæmaturia. Other viscera, problematical. In all great shock.

Repair:—Prolonged; burned tissue, spiculæ of bone, foreign material to be eliminated. To heal from bottom.

CAUSES OF DEATH:

Immediate { Hæmorrhage. Nerve lesions.
Shock (Large shot. Visceral lesions).

Remote. { Secondary hæmorrhage.
Septicæmia or pyæmia.
Erysipelas.
Tetanus.

PROGNOSIS: Largely on parts involved—fate of missile—secondary phenomena.

TREATMENT:—Determine fate of missile by { Location of wound(s).
Probing.
Symptoms.

Extract missile and foreign material; keep wound open; facilitate discharge; treat fracture, if any; prepared for remote lesions. *Powder stains*, pick out grains.

XXI. SURGERY OF THE BONES.

1. CARIES: Tuberculosis; granular disintegration, analagous to ulceration of soft parts. Young subjects; heads of long bones, or cancellous tissue. Chronic.

   SYMPTOMS:—Insidious. Bacterial? Chronic swelling of part (when superficial): abscess, discharge gritty, first laudable, later thin, serous, oily, or albuminous; bad odor. Fistula prominent, nipple-like. Soft parts not adherent. State of health varies. Probe gives crushing sensation. Urine often loaded with lime-salts.

   MORBID ANATOMY: Cancellous portion destroyed; cavities, large and small; advanced stages mere shell of compact tissue.

   PROGNOSIS: Good as to life. Anchylosis or impaired function. May be dispersion, and general tuberculosis.

   TREATMENT: Mostly medicinal. *Calc C. Sil., Merc., Ol jec.*, 1. x. Sulphuric acid injections. Pepsin one-half dram, distilled water four ounces (fluid) 110° F., Hydrochloric aid sixteen drops: inject through canula. Operations. Sometimes amputation, or excision.

2. NECROSIS: Analogous to gangrene of soft parts. Compact tissue. Traumatic. Sub-acute. Essential element obstructed blood-supply. Peripheral—Central. Dead bone, "sequestrum"—detachment, "exfoliation."

   SYMPTOMS: In early stages often mistaken for rheumatism. Often sudden, from exposure to cold-wet; traumatism: medicinal, as mercury or phosphorus. Abscess, discharge laudable pus, later thin, brown, bloody, with occasional spiculæ of bone. Fistula depressed, multiple (?), deep adhesions of soft-parts; discolored integument. Probe give metallic sensation, sometimes mobility.

MORBID ANATOMY; New bone deposited around and over dead (involucrum); openings (cloacæ) leading to surface. Sequestrum embedded in granulations.

PROGNOSIS: Good. Liable to successive attacks, particularly if sequestrum is removed forcibly.

TREATMENT: Pepsin injection (vide "caries"). Operation (sequestrotomy) *when sequestrum is loose*, not before. No indications for remedies, except intercurrently.

3. FRACTURES:—Literally a "break;" technically a "broken bone." not a break, in literal sense: a *tearing* occurring on side of extension.

ETIOLOGY:
- Predisposing.
  - Morbid process. { General. / Localized (osseous). }
  - Sex.
  - Age.
  - Season.
- Exciting.
  - Direct. Giving contusion or wound.
  - Indirect. { Muscular contraction. / Fixing one end of a long bone. / Compression on ends of long bones. }

CLASSIFICATION:
- Extent of Injury.
  - Complete.
  - Partial (green-stick—willow twig).
  - Simple.
  - Compound { Primary. / Secondary. }
  - Comminuted.
  - Complicated.
  - Perforating.
  - Incised.
  - Separation of Epiphyses.
- Line of fracture.
  - Transverse. { En-rave (radish-like). / Pipe-stem. }
  - Oblique (bec de flute).
  - Longitudinal.
  - Stellate.
  - Linear.
- Condition of parts. { Depressed. / Impacted. }

SYMPTOMS: *Deformity*, usually shortening; from muscular contraction, and direction of the force; may be late. Absent (or minimum) in partial, impacted, or no displacement. *Mobility*, unusual, except in impacted, and of some flat bones; no persistence in searching for it. *Pain* inconstant, of value for diagnosis

when no displacement. *Crepitus*, positive sign when present; not "crepitation;" may be felt, not heard, absent in impacted and depressed. *Swelling*, within an hour or so, continues two, ten, twelve, or more days. Loss of power.

PROGNOSIS: Any considerable displacement, comminution, or in compound, perfect symmetry not to be expected.

PATHOLOGY: Without displacement, slight hæmorrhage between the fragments; some exudation. *With* displacement, in addition, torn periosteum, sometimes on one side, and stripped up on the other. Torn tissues may fall between fragments, and prevent union; or portions of bone, completely detached, remain as foreign material. Non-union may, also, be due to failure of formative processes.

REPAIR: With no displacement, no resultant deformity. Similar to soft parts. Preparatory stage, disposition of foreign material: varying time. Then, deposition of callus; *provisional* (temporary) from all the tissues of the part; absorbed in from six months to two years; sometimes permanent: depends upon accuracy of reduction. *Definitive* (permanent) callus, between fragments, partly constructed from former; enduring, more compact than bone. Morbid action may destroy callus, and reproduce fracture. May be deficient; and no union; or exuberant, and functional loss.

TREATMENT. GENERAL:—*Reduction*, gently, anesthetic (?), position to overcome displacing forces; fix proximal fragment, extension (rotary) on other. *Retention*, extemporized splints the best; mostly position, muscles natural splints; some consolidation, then permanent (plaster dressings), for four to twelve weeks. Extension apparatus sometimes best. Passive motion at third or fourth week; rubbing, after the second week. For jerking pains, *Ign.*, to hasten repair, *Symphyt.*, *Compound* fractures, as above; first heal wound, and keep it accessible; but no sutures except in incised fracture. *Complicated*, complication needs first care; *comminuted* as above, but if compound, fragments to be removed if entirely separated; when crushed, possibly amputation. *Ununited* fractures, friction—percussion (Thomas)—wiring, pegs, nails—excision. For simple failure of formative process, *Calc ph.*, *Ruta*.

SPECIAL FRACTURES:

HEAD:	Direct.	one table, both tables. Depressed—linear—stellate. Contusion, or compound.
Vault.	Indirect.	Contra-coup (?) one or both tables. Compression—External table. Brain lesion (xxvi, "Head").

Trephine. *Arm.*, for loose fragments, and hæmorrhage. Expectant.

Base:—Indirect. Very serious. Bleeding from ears, nose etc. Water from ears bad indication. Expectant treatment. Brain lesions.

FACE: Vascularity of region gives speedy repair, hence prompt reduction.

NASAL: Often brain lesion. Reduce by catheter in nose; retain by plugging nostrils, lead or metal bridge, with stitch through nose.

MALAR. Only by great violence; concussion; dislocations; swelling obscures diagnosis. Often irreducible.

ZYGOMA: Direct or indirect. Latter outward displacement. Reduce by chewing on a stick, retain by bandage and compress.

SUPERIOR MAXILLARY: Severe force: concussion; more a dislocation; other bones injured. Irregular dental arch prominent symptom. Retention by moulds, or wiring teeth. Sometimes impossible reduction.

INFERIOR MAXILLARY: Often from blows on chin. *Body*, indirect, on angles, or on one side; at symphysis, but not *in* it: dental arch irregular; pain, or excited by pressure on rami; one fragment may be drawn down. Splint, wire teeth (?), and four-tailed bandage. *Angle* or *ramus*, direct or indirect; chin turned to injured side, mouth closed. Same dressings. *Condyles*, indirect; same symptoms, and same dressings.

HYOID: Direct. Rare. Pain, dyspnœa, dysphagia; mobility of fragments. Adhesive straps and rest. Expectant.

SPINAL COLUMN: *Bodies*, indirect (except gun-shot); usually oblique; compression of cord, and symptoms depending upon region and degree. Recumbency, extension. *Arches*, indirect (blows on spines); concussion, or other lesion to cord. Same treatment, with adhesive straps. *Spinous processes*, direct, muscular contraction, strong flexures of spine. Same treatment.

CLAVICLE: Indirect, force to shoulders; direct, rare. Shoulder narrowed, dropped, forwards. Arm supported in other hand, inner fragment tilted up. Shoulders back, elbow raised raises fragment, bandage, and compress.

STERNUM: At union of portions; direct; sometimes over-riding. Compress, body bandage; or adhesive strap. Thoracic lesion.

RIBS: Indirect, usually. At shaft, neck, or cartilage end. Oblique; wound of lung. Adhesive straps, *on one side*, during inspiration.

SCAPULA:—*Acromion*, direct or indirect, simulates clavicle fracture: raising shoulder reduces deformity. Can place hand on opposite shoulder. Same dressings, generally, as in clavicle. *Coracoid*, muscular contraction, obscure symptoms. Carry elbow forward, hand on other shoulder. *Body*, direct: difficult diagnosis. Body-bandage.

Arm:—*Condyles*, indirect; fall on elbow. Obscure, unless condyle drawn down by flexors, etc., of forearm. Arm in position to relax muscles, and bandage around condyles. *Shaft*, shortening, elbow usually directed outwards. Relax muscles; ordinary splints and sling. *Surgical neck*, simulates axillary dislocation, but freedom of motion, and fullness of shoulder differentiates. Position to relax muscles; shoulder "cap" splint, bandage; weight on elbow. *Anatomical neck* (or head), rare; usually gun-shot. Care in manipulations not to cause further displacement. Treat as above.

Forearm: Radius:—*Neck*, resembles dislocation; supination, radial side seems shorter, with abduction of hand. Extension of arm difficult. Flex arm, semi-pronation, double splints. Repair imperfect. *Shaft*, displacement depends upon relation to biceps, and pronator quadratus. Usually flexed forearm, semi-pronation, double splints. *Colles* fracture (lower end of radius). Prominence in palmar wrist; extension of carpus, adduction (in pronation) of hand. Place forearm supine, and strongly adduct, at same time slowly half pronate. "Pistol" or Bond's splint. *Barton's* fracture, lower than Colles, opening the joint. Same symptoms, minor degree; and same treatment. More danger of a stiff wrist. Ulna:—Shaft, little deformity. Pronate, flex. *Coronoid process*, obscure; often complicated by dislocation backwards of elbow. Same dressings as above: *Olecronon*, process felt high on the arm, voluntary extension lost: Supinate, extend fully, and dress with Hamilton's splint. Ligamentous union possible. *Both bones*, prominent symptoms; easily diagnosed. Semi-promotion, flexed, angular posterior splint, straight anterior. Passive circumduction early.

Hand:—*Carpus*, usually direct; often comminuted. Expectant treatment, probable lost motion. *Metacarpals* and *phalanges*, on general principles as applied to long bones.

Pelvis:—Extreme direct violence as a rule. Visceral lesions often of severe character, outranks the fracture. Treatment of visceral lesion, and expectancy as to fracture; recumbency, bandage.

Femur:—*Neck* intra and extra-capsular. *Intra-Capsular*, causes; age, sex (?), slight violence. No shortening at first, later more; pain in groin; helpless; eversion (inversion ?) of foot; no crepitus, cautious manipulations to avoid displacement; trochanter perhaps less prominent. Usually ligamentous union, or none; permanent disability. Prolonged treatment. Extension apparatus, but dangers of excoriation. *Extra-Capsular* (trochanteric) usually direct, extreme force; impaction the rule. Trochanter driven in: eversion of foot, usually; crepitus, when no impaction; mobility, when no impaction; shortening, primary, secondary.

Differential Diagnosis:—

Intra-Capsular.	Trochanteric.
Slight violence.	Greater violence.
Fall on foot or knee.	Fall on trochanter.
Over fifty years of age.	Often under fifty years of age.
More frequent women.	More frequent men.
Pain less, deeper, diffused.	Pain greater, localized.
Shortening at first little or none.	Shortening primary.
Trochanter turns on longer radius.	Turns on shorter radius.
Three or four months before cure if at all.	Six to eight weeks.
No enlargement of trochanter after recovery.	Trochanter enlarged.
Progressive atrophy for months after recovery.	Natural appearance.
Excessive limping; as wooden leg.	Slight halt.

(Femur). *Shaft*, indirect, usually oblique; about middle. Shortening, and rare full length after recovery. Double inclined plane; extension apparatus. Care of perineum and heel. *Condyles*, rare; indirect, as in elbow. Relax muscles by position, and bandage.

Patella:—*Direct*, vertical. *Indirect*, transverse; muscular contraction. Great disability. Imperfect union due to inclusion of torn tissues between fragments, Straight splint, notched, like "olecronon splint." If no union, wire, nails—or convert into compound, and trim off torn tissues.

Tibia:—*Shaft*, direct; danger of ulceration of integument over spine. Usually little displacement. Often both bones. Inclined plane, or "box.," *Internal malleolus*, usually indirect, and often with a compound dislocation, Dupuytren's splint.

Fibula:—*Shaft*, direct violence. Little displacement, often slight turning out of foot (talipes valgus). Simple splint. *External malleolus*, indirect, sometimes compound dislocation. Modified Dupuytren's splint.

Foot: Carpus, metacarpus, phalanges, as in "hand," except head of *calcaneum* (rare), foot put up extremely extended.

XXII. SURGERY OF THE JOINTS.

1. SYNOVITIS: Inflammation of synovia, acute or chronic; prodromal of many grave lesions.

Acute: Traumatic; idiopathic. *Early stages* ordinary signs of inflammation. *Acon.*, *Bell.* *Rhus.*, *Bry.*, Rest. *Later stage*, effusion (Hydrarthrosis), pain, crepitation. Elastic bandage, aspiration, rest; remedies as above.

CHRONIC: Late stage of *acute*, or strumous, syphilitic, medicinal. Effusion slowly accumulates, becomes boggy, and much crepitation. Sometimes suppuration, fistulous, destruction of joint. Often knee. *Calc.*, *Merc.*, *Sil.*, *Sulph.* Abscess, aspirated, or evacuated.

2. ARTHRITIS: Inflammation of joint. Grave conditions, symptoms in proportion to size and importance of joint. Oftener knee.

ACUTE: Ordinary signs of inflammation; pain excessive; worse at night, and from slightest jar or motion. Swelling uniform, not as in synovitis simply. Sometimes abscess; often anchylosis. Septic, or typhoid complications. *Acon.*, *Bell.*, *Bry.*, *Colch.*, *Rhus.*, *Led.*

CHRONIC: Either *ab initio* (strumous-medicinal), or from frequent repetition of acute attacks. Destruction of joint imminent. *Calc C.*, *Lyc.*, *Sil.*, *Sulph.*, *Thuja*, *Anti C.*

3. ANCHYLOSIS: Loss of joint. False (ligamentous), true (osseous). Trauma. Suppuration in joint; synovitis; muscular contractions. Tenotomy—forcible extension—osteotomy. To improve position, or form new joint. In old cases, remember shortening of vessels and nerves—in young ones, danger of separation of epiphyses.

4. FLOATING CARTILAGES: (False cartilage:) Fragments of articular cartilages; fibrinous "concretions," from synovitis. Fixing in new position: excision.

5. COXALGIA: (Morbus coxarius; hip-joint disease; tuberculosis of hip). Tuberculosis (caries): children, young persons. Sometimes traumatic (?) no prodroma. Unilateral. Three stages.

FIRST STAGE: Limps; easily tired; slight pain in knee; sleep disturbed; at times jerking in knee, and leg; no objectivity. Pain later extends upwards and downwards; tendo Achiles painful. General health as usual. Pressure on trochanter, or striking sole of foot may cause pain. *Pathology*, simple arthritis. Rest of part, extension. *Bell.*, *Merc.*, *Stram.*

SECOND STAGE: Pain localized, still some in knee; more continuous and severe; nates flatten; crural fold disappears; muscles atrophy; leg longer; foot turned in or out; health visibly impaired; sleepless; night fever; night sweats; emaciation; fretful and peevish. *Pathology*, suppuration commenced in joint. Same treatment; perhaps *Coloc.*, *Rhus.*, or even aspiration.

THIRD STAGE: Foot turned in or out; leg lengthened or shortened; iliac dislocation; swelling of hip; œdema; veins turgid and large; rigors; high fever; copious sweat; finally discharge of pus. *Pathology* destruction of joint, all structures; pus finds it way to surface. Sometimes extensive disease of ilium, oftener confined

to head of femur. Early evacuation of pus; extension; excision of head of bone. *Hep S.*, *Merc.*, *Sil.*, *Calc C.*

PROGNOSIS: Good as to life. Some degree of deformity and disability sure to ensue. Arrested growth in the extremity—often anchylosis; remote danger of spinal curvature.

HYSTERICAL: Sex; age. Pain may keep awake, but never wakens. Phimosis, or some remote irritation.

6. SPRAIN: A partial dislocation (not *strain*). Sets up arthritis, in some degree. Rest, moist heat—*Ruta*, *Rhus.*, *Bry.*

7. DISLOCATION: (Luxation:) Displacement of two or more bones forming a joint. Dislocation of distal from proximal. Clear knowledge of anatomy of part essential to inteligent treatment.

CLASSIFICATION:

As to degree.	Complete. Partial (Sprain—sub-luxation). Simple. Compound. Complicated.
As to state of parts.	Recent. Ancient.
Clinical history.	Primary. Secondary.
As to cause.	Spontaneous. Traumatic.

ETIOLOGY.	
Predisposing.	Age—Middle life. Habit of body. Paralysis. Form of joint.
Exciting.	Strained position of joint. Twisting force. Extreme flexion or extension. Motion in abnormal direction.

When direct violence, less than would produce fracture.

SYMPTOMS: Deformity—shortening (some times lengthening); rigidity; later mobility, but restricted, or unnatural; no crepitus, unless accompanying fracture; natural axis with socket always changed. Swelling; pain; discoloration.

PATHOLOGY: Ligaments more or less torn, according to degree. Muscles and tendons stripped up; articular processes often fractured. Vessels and nerves, torn, compressed, tension. Unreduced, new joint imperfectly formed, old one obliterated. Reduced, function restored, but joint always weaker, subsequent dislocation easily produced.

PROGNOSIS: Depends upon degree of displacement—complications, whether recent or ancient.

TREATMENT: Wait, and review the anatomy. In all cases prefer manipulation—large joints, anesthesia. Is it primary, or secondary? To return over the route it came out. In general: Increase the deformity, which unlocks: next, relax obstructions, as flexion, or extension; then replace, by rotation towards joint, traction, and flexion or extension as may be. Failing in *inteligent* manipulation, admissable to use force; pulleys—spanish-windlass; etc. *Rhus., Ruta., Arn.* Care in ancient cases, and the young. Retentive dressings.

SPECIAL DISLOCATIONS: Bones of face not to be distinguished from fracture, except:—

INFERIOR MAXILLA: Caused by extreme depression of chin.

Single (unilateral), mouth partly open, chin to uninjured side (fracture of condyle to injured side); pain and tenseness of muscles; salivation; inarticulate speech. *Reduction*, fulcrum between molars (wood, cork, or thumbs), upward pressure on chin; increase depression to unlock coracoid process. May need anesthetic. Two-tailed bandage, and perhaps splint to jaw.

Double, mouth open, chin depressed to the front; other symptoms as above. *Reduce* in same way; sometimes one side at a time.

SPINE: In general same considerations as fracture; in fact the accidents are associated. Same general treatment, *i. e.:* extension—recumbency—quiet—expectancy.

CLAVICLE: Similar disability, semeiology, and treatment as fracture. *Sternal* end, forward, upward, or backward. Draw shoulders back, compress over sternal end. *Acromial* similar to acromial fracture; practically same reduction and treatment.

SHOULDER: AXILARY (sub-glenoid): From carrying arm in extreme abduction, or vertically. Shoulder angular, elbow out from the body, cannot put hand on other shoulder. *Reduce* (1) Foot or knee in axilla, using humerus as lever. (2) Increase deformity, rotate outwards, traction, rotate inwards and adduct. (3) Raise the arm vertically, traction while bringing down to side, and finally rotate inwards.

FORWARD (sub-coracoid): From carrying elbow back, or rotation of arm outwards. Similar symptoms, but in minor degree. By rotating humerus can feel the head in new position. *Reduction* by same means as axilary.

BACKWARD (sub-spinous): From carrying elbow forward, or rotation of arm inwards. Arm turned out, hand supinated when arm extended; elbow far from side and carried forward. *Reduce*, carry elbow more to front and outwards: if secondary, put it back in primary, and then reduce from that. If primary, next rotate outwards, abduct, rotate inwards, and adduct.

ELBOW: RADIUS (*head*) *forward:* Extreme supination, or forearm

over-extended. Circumduction of hand, shows position of head; hand supine; cannot flex beyond right angle. *Reduce*, supinate a little more, pronate and flex. Bad prognosis. Prolonged retention in right-angle splint. *Radial head backwards:* From extreme pronation, head felt back of condyle; semi-flexed; cannot extend: hand pronated. Flex and pronate, supinate and extend, then flex.

Ulna: *Backwards:* From extreme extension; arm semi-flexed (corocoid process in olecronon fossa); semi-supine hand; unnatural lateral mobility of elbow; shortened forearm, prominent olecronon. Often fracture of corocoid. *Reduce*, (1) slightly flex, traction, rapid extension, flexion. (2) Knee in bend of elbow. *Ulna forwards*, from extreme flexion of arm. Arm strongly flexed; semi-pronated; point of elbow lost; unusual lateral mobility. *Reduce*, (1) Increase flexion, rapid extension pressing humerus forward. (2) Fulcrum in bend of elbow, arm as lever, flex and extend. *Ulna outwards*, from internal flexion of elbow; usually partial; arm supinated and deflected inwards. *Ulna inwards*, the same reversed. *Reduction*, increase the deformity, traction, and flex.

Wrist: Rare; most autopsies show fracture. *Backwards* (dorsal) extreme flexion of hand. Hand depressed, pronated, hollow on inside, prominence on outside of wrist. *Reduce*, increase the deformity, traction, and extension. *Forwards* (palmar), extreme extension. Hand semi-prone, extended, fullness on inside of wrist (like "Colles fracture"). *Reduce*, increase deformity, traction, and flex.

Carpal bones from each other: Rare without fracture. *Reduce* by traction, pressure with the thumbs. Apt to be severe inflammation, and anchylosis more or less.

Metacarpals: Symptoms usually clear; extreme flexion gives dorsal dislocation; extreme extension, palmar. *Reduce* by increasing the deformity, traction, pressure with the thumb, and flexion or extension as the case may be.

Phalanges: As above.

Hip-joint: In one of four directions, or intermediate.

Dorsum iliac: *Primary* ("above the tendon"), force from extreme adduction, and rotation (of thigh or knee) inwards. *Secondary* ("below the tendon"), same force, with extreme flexion, or downward force on head of femur, while leg extended. Shortening; rotation inwards; foot inverted; knee on thigh of opposite side; thigh flexed; hip flattened; trochanter depressed, and higher on ilium. *Reduction*, in *primary* cases, adduct, flex, rotate inwards; abduct, rotate outwards, and extend. *Secondary* cases, adduct, rotate outward, flex *strongly*, rotate inwards, and extend. This releases the neck from the obturator internus, and puts the head in sciatic notch. Reduction from this position: abduct, flex,

rotate outwards, extend rotate inwards. Manipulation failing, anesthetic, direct force (pulleys), making traction in direction the knee points, bearing in mind the obstructions.

SCIATIC (ISCHIATIC): PRIMARY ("below tendon"): Thigh carried in abduction, and forwards; rotation outwards; or downward violence while leg abducted. SECONDARY ("above the tendon"): Originally *dorsum iliac*. Shortening, strong adduction; rotation inwards: flexed from slight, to almost right-angles. Lying on back, pressing down knee, lumbar spine strongly arched. *Primary*, same as second part of secondary dorsum-iliac, viz., adduct, flex rotate outwards, extend rotate inwards. *Secondary*, restore to iliac; adduct, rotate inward, extend. From this position: Adduct, flex, rotate inwards; abduct, rotate outwards, extend.

THYROIDEAN: When thigh is abducted and carried back: or force from above during abduction. Abduction, lengthened, eversion of foot, body bent forward. *Reduction*, abduct, rotate outwards, adduct, flex, rotate inwards.

PUBIC: When thigh is abducted, carried back. Shortening, strongly flexed, abducted, and rotated outwards; trochanter lost, head of bone seen and felt. *Reduce*, abduct, rotate outwards slightly: flex, rotate inwards, extend. Sometimes slips into thyroidean: then put back to pubic.

PATELLA: Blows when leg strongly extended, or from twisting knee. Outwards—inwards—rotated. Extend leg strongly, and press into place.

Knee: Rarely complete. When complete may do so much damage that amputation will be needed. *Backwards*, from exaggerated extension of leg. *Forwards*, from flexion. *Lateral*, from bending in opposite direction. *Reduction*, by increasing deformity, and traction.

ANKLE: In four directions, but rarely complete, never so without complications. *Lateral*, usually with fracture of malleoli (see fractures). *Anterior*, extremely rare, *Posterior* oftener compound, or complicated. *Reduction*, increase deformity, and traction.

TARSAL—METATARSAL—PHALANGES, same as hand and fingers, q. v.

XXIII. SURGERY OF THE MUSCLES AND TENDONS.

1. GANGLION: (Weeping sinew): Cysts, in connection with sheaths of tendons; oftener about wrist. Serous—viscid. Simple: compound. Subcutaneous section, pressure, and *Sil.*, rupture—aspiration—pressure. Galvanism—elastic pressure.

2. STRAIN: Overstretching muscles or ligaments; possible rupture of some fibres. Occasional permanent atrophic changes. Not a "sprain" (see "*Joints*". *Rhus.*, *Ruta*, rest.

3. CONTRACTIONS: Tonic spasms of muscles, at first painful; disappear, or modified under anesthesia. Cause, some nerve lesion, near or distant; congenital shortening of muscles; from prolonged use of apparatus; traumatism, as loss of muscular tissue, or misplaced tendon-insertion. Hysteria. *Test:* Put part on stretch, "finger point" pressure painful. *Plumb.*, *Strych.*, *Sil.*, *Rhus.*, *Ruta*, *Caust.* Tenotomy, open—subcutaneous.

4. CONTRACTURE: Old contractions that have ceased to be spasmodic or inflammatory. Atrophy of muscle—fibrous degeneration. Agglutination from exudations. Unchanged under anesthesia. "finger point" pressure not painful. Forcible replacement, and immovable dressings. Massage—Galvanism—Tenotomy (open ?). *Nit. Ac.*, *Sil.*, *Led.*, *Caust.*

5. "TRIGGER-FINGER" (Dupuytren's finger contraction): Not muscular: contraction of fascia. Section, subcutaneous.

6. TALIPES: (*Club foot*): Contractions (or contractures) of muscles of the leg, twisting the foot in various directions. *Congenital*, from pressure from coils of umbilical cord, or other intra-uterine accidents—defects in development. *Acquired*, from accidents, or morbid conditions, that cause false positions of the foot, often as compensation. Accidents to muscles, tendons, or ligaments about foot or ankle. *Treatment*, search for maintaining cause, to be removed. If *contracture*, tenotomy—forcible reposition and retention—massage. If *contraction*, tenotomy—remedies—never forcible replacement. If from deformity of parts from traumatism, special indications. Old talipes, past early life, bones distorted so that full recovery is doubtful, and fascial shortening. *Brucea Ant.*

   PES EQUINUS: Contraction of muscles of calf; or paralysis of flexors. Walks on toes.

   PES VARUS: Contraction of tibialis anticus, and other adductors, and flexors; or paralysis of opposing muscles. Walks on outer side of foot.

   PES CALCANEO: Contraction of flexors, or paralysis of extensors. Walks on heel.

   MIXED-FORMS, as *Equino varus*, etc., combinations of above.

XXIV. SURGERY OF BLOOD-VESSELS.

1. NÆVUS (Birth-mark—Mother's mark): Tumor forms, *Angiomata*, erectile tumors.

   Local vascular hypertrophy; increase in size (and number?) of blood-

vessels. From large pendulous tumors, to small flat areas of discoloration.

CAPILLARY: Flat, non-pulsatile; bright color; irregular outline. *Acetic acid*, *Secale*, electrolysis with carbon points.

VENOUS: Varying size; dark color; elevated in varying degrees; irregular outline; compressible? Excision, when small; electrolysis; strangulation; astringent injections.

ARTERIAL: Tumor-like; pulsatile; higher temperature; bright color; pulsation controlled by pressure on afferent vessels. Ligature of feeding vessels, and as above.

2. VARIX (Varicose veins): Increase in capacity and length of veins, giving tortuosity. *Physiological* (compensatory), from obstructed veins (as in pregnancy); no *lesion* at point of varix. *Pathological* changes in coats of veins—thinning—thickening—cribriform. In pendulous or unsupported veins. Slightly lowered temperature; staining of part; thinning of integument. *Treatment*, remove apparent cause; elastic pressure (or support), *Ham V.*, *Nux V.*, *Sulph.* Support by "reefing;" double ligature; excision of veins.

3. ANEURYSM: A cystic tumor containing blood, communicating with an artery.

FALSE: An opening in an artery, and adventitious cyst (hæmatoma).

TRUE: The walls formed of one or more coats of an artery.

Fusiform (tubular); the typical form; sacculated; dissecting.

Anomalous forms: { Aneurysmal varix. / Varicose aneurysm. / Cirsoid aneurysm.

Traumatic (acute), single.

Symptomatic, multiple; aneurysmal diathesis.

ETIOLOGY: *Exciting*, increased tension (as in stricture of urethra, or obstinate constipation). Traumatism, as lesion of one or two coats. *Predisposing*, diseases of coats of artery, atheroma, or fatty degeneration; habits, favoring preceding lesion, as alcoholism; occupation; general morbid conditions; sex; age; race.

SEMEIOLOGY: Differs in superficial and deep. SUPERFICIAL, appears suddenly; "stroke with a switch;" rapid swelling; hot; pulsatile; "struggling under the hand;" proximal pressure diminishes pulsation and swelling; distal increases both; "*bruit*," blowing, whistling, purring, buzzing, depending upon size of opening, or distance from surface. DEEP, obscure, *bruit* main reliance: in chest, "double heart sound," cough, and dyspnœa; both forms much pain.

DIAGNOSIS: Abscess—Hernia—Cystic tumors.

PATHOLOGY: *Traumatic*, usually lesion in outer coat; sacculated.

rapid progress, soft coagulum. *Symptomatic*, chronic; outer coat thickened, middle thinned, inner studded with deposits, coagulum laminated; commences tubular, becoming sacculated on side of least resistance. At points of division of arteries of first or second magnitude. Absorbs hard parts with which in contact.

PROGNOSIS: Natural termination rupture, hæmorrhage, death. Occasionally spontaneous cure by organization of clot, and obliteration of vessel.

TREATMENT: Object to cause coagulation, organization of coagulum, and obliteration of vessel. *Ligature*, proximal—distal—double—secondory branch. *Pressure* digital—mechanical—Esmarchs. Galvanism, injections Secale, per-sulphate of iron; foreign material as nucleus for coagulation. *Remedies*, *Lycop.*, *Secale*, *Gallic Ac.*, five drop doses.

XXV. SURGERY OF THE NERVES.

1. NEURITIS: Inflammation of nerve. Traumatic—Symptomatic—Idiopathic—Acute—chronic.

   Ordinary signs of inflammation; pain constant, or remittent; sensitiveness of nerve to touch or pressure during remittance. (Neuralgia, intermittent, and not inflammatory).

   PATHOLOGY: Nerve swollen; infiltration into sheath and neurilemma; late stages leading to atrophy or sclerosis. Sometimes a secondary inflammation.

   TREATMENT: *Allium Cepa*, internally, or as poultice. *Bell.*, *Ars.*, *Colocy.*, *Hyperic.*, *Cham.*, *Lycop.*, *Stram.*, *Ign.*, *Rhus.*, *Zinc.*, *Sulph.* Nerve-stretching, extent determined by condition of the nerve as to atrophy. Excretion.

2. NEUROMA (Subcutaneous painful tubercle): *Spuria*, tumor of fibrous character, in connection with a nerve or its sheath. *Vera*, tumor developed from, or containing nerve tissue. Distinguished from "ganglion" by restricted mobility, and sensitiveness. Usually an accompanying neuritis. Excision usually required, with suturing nerve with animal ligature.

3. TETANUS (Lock-jaw): A state of tonic spasm, associated with intermittent clonic convulsions, commencing in voluntary muscles, and extending to involuntary.

   Traumatic, oftener from compound fractures.

   Idiopathic, from sudden lowering of temperature, very often.

   Symptomatic, in connection with bodily crisis. Infancy.

   ETIOLOGY: Exceedingly obscure. Bacterial? Septic? Peripheral—Central.

   SEMEIOLOGY: *Prodromal*, sudden pain, pressive, with nausea

under the sternum, almost like angina pectoris. Or stiffness and painful contraction of muscles about the jaw (*Trismus*). *Explosive*, tonic contraction of muscles of the trunk, often abdomen, with frightful clonic convulsions; contractions extend from muscle to muscle, until whole body may be distorted. *Opisthotonos*, body drawn backwards; *pleurothotonos*, to one side; *emprothotonos*, curved forwards, profuse sweat, no fever; face distorted, fear, agony; inarticulate moaning; retained consciousness throughout; hyperæsthesia general, slightest unexpected touch, motion, sound, current of air, flash of light, or glistening object brings on convulsions. Contracted muscles like a board or iron-bar. Death comes from extension to involuntary muscles, as diaphram or heart. If recovery aged expression of face permanent. Muscles have been torn or bones broken. Hydrophobia in all but the history of a bite from a rabid animal.

PATHOLOGY: Negative as to anatomy. Somewhat constant feature hypostatic spots in gray matter of cord.

PROGNOSIS: Better in traumatic cases. Better when acute, rapid, and after fifth day. Better if sleep with muscular relaxation.

DIAGNOSIS; Epilepsy—Hydrophobia—Strychnia poisoning.

TREATMENT: Profound quiet; no violent restraint. Chloroform? *Cupr Acet.*, sub-sternal pain, *Bell.*, trismus, *Acon.*, *Cicu Vir.*, *Stram.*, *Cham.*, Typical remedies, *Nux Vom.*, *Strych.* After recovery, *Arnica* for muscular lameness.

XXVI. SURGERY OF THE HEAD.

1. CEREBRAL LOCALIZATION: Important for diagnostic purposes; chiefly in locating motor centres, in present state of knowledge; approximate localization from sutures.

Sight, occipital lobes of cerebrum.

Hearing, temporal convolutions.

Speech, lower third frontal convolutions.

Motor Centres. { Lower extremities. / Upper extremities. / Face.

Character of lesion. { *Tumor*, slow, intermittent, remittent, non-inflammatory. / *Effusion* rapid, continuous, non-traumatic. / *Extravasation*, rapid, continuous, abatement. / *Abscess*, rapid, traumatic, inflammatory, continuous.

2. COMPRESSION OF BRAIN: Fracture (depressed); hæmorrhage; effusion; foreign bodies; tumors.

Symptoms come on slowly, at maximum: Coma; cold face; eyes half open; clammy perspiration; "pumping" of larnyx; stertorous respiration; frothing at mouth; pupils irresponsive, contracted or dilated.

Prognosis, better in traumatic cases; bad, when breathing becomes irregular, also when extension from one motor area to another.

Treatment: Depressed fracture, trephine; or, if fragment is not impacted, *Arnica*. Effusion, *Apis.*, *Hell.*, *Ars.* Foreign, bodies, remove if accessible. Tumors, the same. Abscess evacuate.

3. CONCUSSION OF BRAIN (Stunning): A severe jarring injury without fracture. Varies from complete insensibility, to momentary confusion of mind.

Symptoms come on at once, in full intensity; resemble shock (q. v. *ante*). In two groups: *Primary*, Coma, usually answers when spoken to, but relapses again; eyes closed; pulse weak; sphincters and muscles relaxed; cold surface; pale face; respiration shallow slow; dilated pupils. *Secondary* reaction, returning warmth and consciousness, vomiting; fever and delirium; sometimes encephalitis.

Pathology, often negative; may be a mere molecular derangement, or fluidification of whole or parts of brain. If not fatal, brain lesions may result in sclerosis.

Prognosis, usually good, depending upon brain lesion; bad, when coma deepens. Good when vomiting. Remote consequences, varying lesions of brain, as sclerosis, abscess, and irritation.

Treatment, entirely medicinal. *Arn.*, *Camph.*, *Veratr.*, or diffusible stimuli, by olfaction; Amyl Nitrate, Ammonia. No alcohol, unless subcutaneously (*vide* "Shock").

4. IRRITATION OF THE BRAIN: Concussion, modified by bodily condition, and complicated by laceration of brain mass rather than fluidification.

Symptoms come on at once; curling and twisting about, but not convulsive as a rule; face frowning; eyes tightly closed; pupils contracted; incomplete coma, answers when spoken to, but peevish and irritable; pulse slow, feeble, skin cold; sometimes delirium, shouting, but answers correctly when spoken to.

Treatment, as concussion.

5. INFLAMMATION OF BRAIN (Encephalitis): May succeed shock, or any brain lesion. High fever; delirium; holds head in hands; eyes blood-shot, open or shut; pupils contracted (or dilated?); complains of pain in head; vessels seen to beat strongly. Prodromal of suppuration.

Treatment, *Acon.*, *Bell.*, *Glon.*, *Hyos.*, *Stram.*

6. HERNIA CEREBRI: Protrusion of brain material through opening in skull. Traumatic—Fungous mass pulsating synchronously with the heart; if pushed back causes giddiness; syncope.

Distinguished from—fungous of dura mater—of cranium—sebaceous cysts.

Treatment, excision—pressure—close wound, or fit an obturator.

XXVII. SURGERY OF THE SPINE AND CORD.

Normal curvatures of spine; normal flexions. Pathological curvatures, exaggerations of normal curves (minor importance), or curvatures in opposite or abnormal directions. *Results* in lesions of cord, chiefly atrophic; alterations in relation of viscera; hence wide range of functional abnormalities. *Consequences*, often rigidity, through anchylosis, and loss of normal flexions. Sometimes, apparently, continuously progressive.

1. LATERAL CURVATURES (Scoliosis:) Most common, and serious: oftener in dorsal spine.

   Etiology: Muscular deficiencies; deficiency or disability in lower extremities: habitually faulty positions of body; occupation; sex: age.

   Diagnosis: Back uncovered, sitting, standing, and lying; prominence of breast and hip, on side of curvature. Impressions with sheet lead, as guide to progress of treatment.

   Treatment: Rarely apparatus of any kind, unless consolidation has commenced. Test, the ability to restore normal position. Mainly gymnastics; correct habits in lying, sitting, standing. Compensate for deficiencies. Fencing; suspension; massage. Promote deposition, and prevent absorption, *Calc C.*, or the indicated remedy.

2. POSTERIOR CURVATURE (Kiphosis): An exaggerated dorsal curvature, or loss of lumbar (later becoming reversed). Difficult detection in early stages. Similar *causes* to above. Also *treatment.*

4. ANTERIOR CURVATURE (Lordosis): Exaggerated lumbar curvature, or loss of dorsal (later becoming reversed). *Cause.* oftener some disability in the hip-joint, or lower extremities.

   Treatment, as above, adding compensatory appliances when from tilting the pelvis from defects in lower extremities.

5. MODIFICATIONS AND COMPLICATIONS:

   Rotation of vertebræ, in connection with any of the preceding, particularly scoliosis. Gives additional abnormalities in spinal canal.

   Double Curvatures: As anterior lumbar, and posterior dorsal, or the reverse; lateral, in different directions in each region.

   Multiple Curvatures: Lateral in one region, and some other form in another, with rotation in one or all. Occasional consequence of paralytic affections from spinal lesions.

6. ANGULAR CURVATURE (Pott's disease. Spinal caries, or Tuberculosis): Caries attacking the bodies of vertebræ, usually in middle or lower dorsal, or upper lumbar. Gradual angular deformity.

ETIOLOGY: As in caries in general, the exciting cause usually some traumatism.

SEMEIOLOGY: *First stage*, those of struma generally, with feeling of weakness and pain in the back. Characteristic gait, and manner of stooping. *Second stage*, projection of spinous process involved; gait—standing—stooping. Abscess, local pointing, or in groin, loins, or elsewhere. Health visibly impaired; progressive emaciation; urine loaded with bone-salts; sleepless. *Third stage*, deformity marked; locomotion impossible; often the last stage. *Fourth stage*, consolidation; anchylosis; permanent deformity, "hump-backed;" health poor, often permanently, from disturbances due to altered relations of viscera, and innervation.

PATHOLOGY: Gradual destruction of body of vertebræ; may extend to neighboring ones; dislocation backwards, giving sharp angle to spine. In favorable cases, repair as in caries in general, with anchylosis, and gradual partial accommodation to new relations.

PROGNOSIS: In early stages good, but anchylosis to be anticipated.

TREATMENT: *Before anchylosis*, to take off pressure, and maintain normality of spinal curves. Plaster-jacket with or without jury-mast; other forms of artificial support. Care in making extension. *After anchylosis*—has commenced or is imminent, no extension, but *support* to prevent further deformity. *In all stages*, quiet, and recumbency (or its equivalent); evacuate abscesses as formed; take off pressure; and remedies as indicated. *Calc C.*, *Calc ph.*, *Sil.*, *Merc V.*, *Oleum An.*, *Asaf.*

7. SPINAL CONCUSSION (Railroad spine): From extreme jarring injuries, as railroad accidents; falls; or continuous concussions from occupation.

SYMPTOMS: *Prodromal*, negative. *Second stage*, uncertain locomotor co-ordination, particularly in the dark, or with eyes shut; diminished tendon-reflex. *Third stage*, progressive analgesia, until complete. At first hyperesthesia, later progressive anesthesia. Paralysis ascends.

PATHOLOGY: Spinal sclerosis (posterior) usually in upper lumbar or lower dorsal, ascending, with atrophy below.

PROGNOSIS: Unfavorable in later stages.

TREATMENT: *Arg Nit.*, *Pic ac.*, *Alum.*, *Secale*, *Sil.*

XXVIII. SURGERY OF THROAT AND NECK.

1. CUT-THROAT: Usually suicidal; homicidal more dangerous, from the direction of the wound. If fatal, so speedy that no treatment possible. *Injuries to air passages*, gives immediate danger of apnœa from blood in lungs; later pneumonia; more remotely emphysema—distortion of cartilages.

   TREATMENT: Arrest hæmorrhage; double ligature; suture each tissue separately; bandage to flex neck, and fix head. In suicidal cases tie hands, and constant watch. Swelling (œdema) imminent. *Acon.*, *Arn.*, *Calend.*, *Apis.*

2. FOREIGN BODIES IN THROAT: Includes œsophagus and air-passages; latter usually protected.

   GASEOUS, irritating vapors of various kinds; usually evanescent, but may induce inflammation.

   FLUID. { *Hot*—Scalds—œdema, and possible ulceration. *Cold*—Cough, temporary strangulation. *Chemicals.* { Acid / Alkaline } Erosions, ulceration, and danger of adhesions, atresia.

   TREATMENT: Neutralize immediate effects by suitable antidotes (acids or alkalies); œdema, *Apis.*, *Rhus.*, *Ars*; erosions or ulcerations. *Calend.*, Bougies to prevent stricture. *Sil.*, for vicious cicatrization.

   SOLID: All sorts of material, as coins, fish-bones, etc.

   Consequences depend upon { Size. Shape. Material. { Soluble. Insoluble.

   Natural course to pass into stomach (or lungs?), ejected by vomiting or coughing. May be held by muscular spasm, or engagement of angles; ulceration and hæmorrhage, with cicatricial stricture as final result.

   TREATMENT: Remove through mouth, entire or piecemeal. Incision—tracheotomy—œsophogotomy. Push into stomach. Prevent vicious scarring by bougies, and *Calend.*, To correct the same, electrolysis, *Sil.*

3. BRONCHOCELE (Goitre): Enlargement of thyroid body, lobular or entire. Simple hypertrophy—fibrous degeneration—cystic degeneration—angeiomatous—various tumor-forms.

   ETIOLOGY, of pure goitre, obscure; silico-fluoride of calcium; snow water; race; sex; age.

   SYMPTOMS: *Local*, merely hypertrophy. *General*, more or less dyspnœa; cardiac irritability; pressure effects; tension of nerves.

   PATHOLOGY: Local conditions as above; ex-ophthalmic ("Graves

disease") refers to *Practice* and *Eye and Ear*. Association with menstruation. Tumor-forms and malignancy, as general.

DIAGNOSIS: Moves up and down, with trachea.

PROGNOSIS: In simple goitre, no special danger, apart from pressure, and tension on nerves. Unfavorable in tumor-formations, in proportion to malignancy. "Graves disease," serious. Loss of gland, myxœdema.

TREATMENT: Depends upon form: Simple trophic, *Spong.*, *Lapis Alb.*, *Iod.*, *Calc Iod.*, *Baryta C.*, Cystic, tapping and *Iod.*, or *Bell.*, Pulsatile, ligature of arteries, and electrolysis. Tumor-forms, ligature of arteries—division of isthmus—enucleation, only partial on account of myxœdema.

4. TORTICOLLIS (Wry-neck): Muscular contraction or contracture; mostly of sterno-mastoid, but other muscles and fascia added, occasionally. Bad effects on cervical spine.

Congenital, often from rupture of muscle at birth. *Acquired* from various inflammatory, neurotic, or traumatic causes.

TREATMENT: Careful tenotomy, and immediate reposition of head, as nearly as may be.

5. TUMORS OF NECK: Trophic, of sub-maxillary, parotid or other glands; congenital cyst (hydrocele of neck). Fibroma, lipoma, sarcoma, in order of frequency, or true carcinoma.

XXIX. SURGERY OF THE CHEST.

1. FOREIGN BODIES: Find entrance through air passages, or wound of thorax. Lodging in lungs, can only be removed by migration to trachea, in mucus, or suppuration. More or less motion gives rise to inflammation. When in trachea, tracheotomy. In lungs, accurately located, *may* be reached by incision and costal resection. In rare cases, become encysted. If through a wound, and cannot be reached thereby, keep wound open, and discharge may bring it within reach. Want of continuity in wound an embarrassment. Resulting inflammation. *Acon.*, *Ars.*

2. TUMORS OF BREAST: Of all varieties. Women, largest number; men, greatest variety.

More tumors of breast than any other region, from functional activity, and exposure to injury.

For practical purposes, discriminate between, solid, cystic—innocent, malignant.

INNOCENT TUMORS: *Solid*, any period of life; rapid growth; painless; retains form of organ; usually becomes detached from thorax; if axillary glands implicated, not persistent, or painful. *Cysts*, smoothly globular, elastic or fluctuating. Perhaps more rapid growth.

Malignant Tumors: Oftener *scirrhus;* after fortieth year. *Occult* stage, steady, slow growth; "square" outline; nipple early retracted; painful; breast at first atrophies; adhesions to thorax: skin adherent; tortuous veins; dark color; stony hardness; Nodular; axillary and other glands implicated, persistent, hard, and painful; may be multiple, but usually single. Duration two to six years. *Open* stage. Nodules soften; ulcerate; small, deep, multiple ulcers; narrow areola; "crater" like; coalesce; extend in depth, superficially; indurated edges; irregular; painful; cachexia. Neuralgic concomitants; prodromal sciatica. Duration one to two years; from commencement six to eight years.

Prognosis: Innocent growth may take on malignant characters; while innocent, prognosis good. Malignant tumors, before adhesion prognosis fair; after adhesion doubtful; after glandular extension bad, hopeless. Occasional atrophy and elimination.

Treatment: In all innocent tumors, and innocent stage of malignant, amputation of breast. If adhesions commencing, include integument, subjacent structures, and enucleation of all suspicious glands. Primary union not desirable. Remedies not to be used. Too much risk.

3. VISCERAL LESIONS:

In general, great danger from hæmorrhage and shock.

Heart: *Wounds* of not necessarily fatal; depend upon kind, and location. Incised wounds, of auricles fatal; of ventricles somewhat on direction, whether parallel or transverse as to muscular fibres. May be non-penetrating. Gun-shot injuries, usually extensive disorganization. *Contusions* of heart, serious impairment of function. *Treatment* of all heart lesions expectant.

Lungs: Hæmorrhage, coagulation. If solidifies, life may continue. Suppuration, or other disorganization, destruction of lungs or life. *Treatment* expectant; enforced quietude.

XXX. SURGERY OF THE ABDOMEN AND INTESTINAL TRACT.

1. FOREIGN BODIES:

In stomach or intestines; from mouth, or wound. If insoluble, spasmodic retention; ulceration; perforation; hæmorrhage. Disposition to pass through the canal, if not too large for pylorus, and ileo-cæcal valve. Otherwise to be removed by gastrotomy.

2. VISCERAL LESIONS:

Contusions—lacerations—or various wounds. Contusions, negative symptoms, usually only weight and some functional change.

as icterus, in case of liver. *Arnica*, usually curative, and no sequelæ; at times inflammation, adhesions, or suppuration. LACCERATION (aggravated contusions), or WOUNDS, serious from hæmorrhage (concealed), and possible peritonitis. Other indications various. STOMACH, vomiting of blood, and injesta in wound. INTESTINES, bloody stools, contents in wound, and tympanitis. LIVER, SPLEEN, PANCREAS, weight in region, sensitiveness; later functional changes, *e. g.* icterus, anæmia (?), fatty stools. KIDNEYS and BLADDER, bloody urine. Where bleeding suspected, laporotomy, and ligature, or hæmostatics. Wounds of stomach, intestines, or bladder suture. After-treatment, as laporotomies in general.

3. HERNIA ABDOMINALIS:

Protrusion of viscera, through natural or accidental opening; applies to any visceral cavity; without qualification, abdomen understood.

Time of appearance { Congenital—Anatomical deficiencies, or abnormalities. / Acquired—Traumatism.

Duration. { Recent—No change in structure or relation. / Ancient—Changes in do do

Contents. { Enterocele—Sound in reduction. Significance. / Epiplocele—Sound in do / Entero—epiplocele.

Reducibility. { Reducible—Spontaneous, or mechanically. / Irreducible— { Strangulated—acute. / Incarcerated—chronic.

Extent. { Partial—Bubonocele. / Complete—Scrotal—Pudendal.

Location. { Inguinal. { Direct—Internal—Traumatic. Acquired. / Oblique—External. Congenital. / Straight—External. Old oblique. / Femoral—More in women. Congenital or acquired. / Umbilical. Congenital, or acquired. / Ischiatic—Traumatic. / Ventral. Traumatic.

ETIOLOGY: *Exciting causes*, sudden diminution in capacity of abdomen: wounds of abdominal parieties.

Predisposing causes, natural, congenital, or acquired.

Natural—the existence of openings.

Congenital { Preternatural elongation of the mesentery. / Patency of the vaginal process of the peritoneum. / Muscular deficiencies. / Unusual size of openings.

Acquired. { Intestinal or vesical obstructions; Occupation—Sex—Age. Wounds (scars) of parieties.

Semeiology: *Recent hernia*, after some effort a *tearing* pain (aneurysm, blow with a switch; ruptured tendon, blow with a stick). Protrusion—sharp pain—tenesmus—puffing up of tumor—elastic—sensitive—soon becoming hot and inflamed. If not reduced becomes strangulated (q. v.).

Ancient hernia, protrusion more when standing, and in morning; less when lying. "Cough impulse."

Irreducible hernia, "incarcerated," constant protrusion, lessened when lying down. "Cough impulse." *Strangulated*, rapidly increasing inflammation and tenderness; fever; vomiting, later becoming stercoraceous; collapse; death. Or, plastic exudations, adhesions, and incarceration. Or, fæcal fistula, and artificial anus.

Pathology: *Recent hernia*, possibly rupture of some fibres, or protective fascia; if reduced probable repair: if becomes *ancient*, gradually elongation of mesentery; thickening of sac; enlargement of opening; atrophy of muscular fibres; agglutination of envelopes; alteration of relations. If *strangulated*, obstructed circulation; inflammation: exudation or gangrene.

Complications, often hydrocele, or varicocele.

Prognosis: The existence of hernia *always* a menace to life, from danger of strangulation.

Diagnosis: Aneurysm—Abscess—Hydrocele—Varicocele—Hæmatocele—Sarcocele—Labial (or other) cysts.

Treatment: Depends upon conditions:

Recent hernia, involves:

Reduction. { Taxis—Position—Anesthesia. Possible internal hernia; rupture. Compression, elastic. Rupture, or gangrene. Congelation. Aspiration—Possible fœcal fistula. Inversion.

Retention, by suitable truss, or equivalent.

Strangulated hernia, only rational treatment herniotomy. Divide fascial envelopes—open sac—incise constriction—suture canal. If gangrene, enterectomy, and unite intestines by primary or secondary operation.

Incarcerated hernia, as above, if adhesion can be broken up. If not, enlarge opening, to lessen danger of future strangulation, or enterectomy.

Ancient hernia, truss if effectual, and *Lycop.*, to shorten mesentery; if ineffectual, herniotomy. Essential features, obliterate sac—diminish opening—shorten mesentery (*Lycop.*).

4. Intestinal Obstruction:

Acute: *Volvulus;* twisting of pendulous portions, from rotation of body. Colon, or mesentery (?).

Intussusception (invagination), telescoping one portion into another, from violent peristalsis. Probably common in minor degrees. Small intestine.

Internal hernia, rent in mesentery: knuckle of intestine engaged therein. Traumatism. Small intestine.

Symptoms: Violent pain, at first localized, then diffused; distension of intestine commencing at point of obstruction; extending inwards, "sausage feeling," on palpation; fever; anxiety; hiccough; gangrene; collapse. Sometimes sloughing of large masses, and recovery.

Pathology: Similar to hernia. Next to obstruction, inflammation prominent, with exudation and adhesions; or gangrene and sloughing.

Diagnosis: Impacted fæces; renal, or billiary calculus; peritonitis.

Prognosis: Grave, although apparently hopeless cases have recovered without functional loss.

Chronic: Paralysis of intestines—pressure of tumors—malignant disease—cicatricial bands—strictures.

Symptoms: Similar to acute, but less severe, and coming on slowly. Acute symptoms may intervene, sacculation above stricture, fæcal accumulation, and volvulus or intussusception.

Prognosis: Not good.

Treatment: *Malignant* cases, expectant, or laporotomy and enterectomy: Colotomy, and artificial arms. *Non-malignant* cases, laporotomy, and remove causes, or as above.

5. Hæmorrhoids (Piles):

Originally varix of veins in anal region, later fibrous organization.

(*a*) External. Acute: Varying etiology: sedentary habits, standing occupation, prolonged constipation, habitual diarrhœa. Burning and itching in anus; soon smarting, tenesmus; painful stools, hard or soft; tense, more or less globular masses, about verge of anus, and within sphincter, painful to touch; forced beyond sphincter, held by spasm, and sufferings increased. Rupture, hæmorrhage, and gradual subsidence. Remain often, as hypertrophied masses, easily inflaming.

(*b*) External Chronic: From repetition of acute attacks. Masses like folds of thickened skin, flattened, or globular. May cause no symptoms; take on frequent inflammations; varicus reflexes.

Treatment: *Acute* forms easily cured by proper remedy. *Aloes, Æscul., Ham., Nux Vom., Petrol., Sulph.* Correct causative condition. If very painful, open with lancet, turn out clot, cold applications.

Chronic forms, if frequently inflamed, or causing reflexes, excision: care about scar. Remedies little value. *Sil.*

(*c*) INTERNAL PILES: Between the sphincters, usually in rows. Arterial, or venous; villous (sessile), or pedunculated. Usually bleed freely; become inflamed, and symptoms violent. Reflexes numerous and important. Itching of anus and perineum; oozing of mucus: soreness of adjacent parts.

TREATMENT: Mostly remedies as above. *Nit Ac.*, *Mur Ac.*, *Merc.*, *Graph.*, *Sil.*, *Bell.*, *Puls.*, *Arsen.* In bad cases, excision, or of whole pile-bearing tissues between the sphincters. Care about contracting scar.

6. FISTULA IN ANO (Rectal fistula):

A fistula opening in neighborhood of anus, caused by abscess, from traumatism, lodgment of foreign material, or tuberculous processes: opens on integument, or just within anal verge (in mucous folds), single or multiple. Communicating with bowel or not; blind external—blind internal—complete.

TREATMENT: As fistula elsewhere. Destroy pyogenic lining; excision—caustics—ligature (?). Paralyze sphincters.

7. FISSURES OF ANUS:

Rhagades in mucous membrane, extending to sphincter. Symptomatic or traumatic; often (perhaps always) an ulcer. Intense pain, during and after stool; burning; agonizing. Reflexes numerous and important.

TREATMENT: Chiefly paralysis of sphincter. *Bell.*, *Graph.*, *Nit ac.*, *Paonia*, *Ratanhia.*

XXXI. SURGERY OF URINARY APPARATUS.

1. FOREIGN BODIES:

In *urethra* from broken catheters, etc.; lodgment of calculi from bladder. Consequences, inflammation—ulceration—perforation—cicatrical stricture. Extract with forceps; urgency, incision.

Bladder, renal or vesical calculi (q. v.): portions of instruments: bone-fragments: gun-shot missiles. Practically same as stone. Encrusted with urinary deposits; hæmorrhage; cystitis. Female bladder easily reached through urethra. Male bladder, cystotomy, supra-pubic, or perineal.

2. RUPTURE OF BLADDER:

Contusion or concussion, when bladder is full. Consequences depend upon location, with reference to peritoneum. *e. g.*, peritonitis.

or pelvic abscess, and possible urinary fistula. Fruitless urging to urinate; catheterization, nothing, or only blood.

Prognosis depends upon site of tear; lower parts, bad; upper, better, excepting as to peritonitis.

TREATMENT, epicystotomy; flushing pelvis and peritoneum; careful suturing; retained catheter. *Acon.*, *Ars.*, *Rhus.*

3. PERINEAL FISTULA:

Urinary fistula opening on perineum; from abscess in pelvis, or impermeability of urethra.

First indication, to restore urethra; next to close fistula, which is often spontaneous.

4. URINARY LITHIASIS:

Formation of calculi, in any portion of the urinary tract.

May be renal—uretal—vesical—or urethral.

(*a*) RENAL LITHIASIS (Gravel).

Calculi formed in kidney. Composition of urine 5% solids; inconstant composition; manner of elimination, and significance of process. Increase in solids (s. g.) gives change in reaction, *e. g.*

Acid. { Uric (lithic) acid.
{ Calcic oxalate.

Alkaline { Calcic phosphate. { Amorphous.
{ Crystalline.
{ Triple phosphate (Am. Mag. Ph). { Stellate.
{ Rhombic.

Essential to calculus, increase s. g.; lowered temperature: presence of a nucleus. Forms in tubules, gaining bulk by accretion. Influence of climate—race—water—food.

Fate { Pass to bladder. Nephritic colic.
{ Retained in tubule. { Hydro-nephrosis.
{ Pyo-nephrosis.

SEMEIOLOGY: *Nephralgia* (nephritic colic): Sudden, intense pain, in loin, extending to groin, perineum, and meatus. Frequent, small urination, or ineffectual urging; later vomiting, sudden cessation of pain, and profuse urination, often bringing the stone with it. Duration, one hour, to several days.

Habitual, no colic; quantities of inorganic sediment.

Hydro-nephrosis, often no symptoms. Gradual fullness in renal region; deep fluctuation. At first diminished urine; later normal quantity. Aspiration only positive sign; when rapid, symptoms of uræmia; very obscure.

Pyo-nephrosis, chill; fever; swelling and tenderness in renal region; usual signs of deep abscess; pus in urine; aspiration only positive sign. Stone may pass out through vagina, rectum, pelvis, or loins.

TREATMENT: For the *diathesis*, correct habits, diet, etc. Uric

acid. *Ars.*, *Lyc.*, *Cham.*, *Sep.*, Calcic oxalate. *Nitro Mur Ac.*. In general, *Berber.*, *Calc C* (or *ph*)., *Phos Ac.*, *Benz Ac.*

Pyo-nephrosis. Aspiration; nephrotomy; extraction of stone; or nephrectomy.

Nephritic Colic. No opiates. *Chin.*, *Lycop.*

(*b*) Uretal Calculus:

Usually lodgment of renal stone. May be stricture ureter, sacculation, decomposition of residual urine. Symptoms obscure. When of renal origin, imperfect termination of colic, and gradual hydronephrosis. May be reached through rectum or vagina.

Treatment, expectant, as when discovered kidney usually much disorganized.

(*c*) Vesical Calculus (Stone in the Bladder).

Originate in bladder, from decomposition of residual urine; nucleus of blood, pus, mucus; foreign bodies. No lithiasis. Oxaluria. Renal origin, calculus not passing out of bladder. Soft nucleus gives acid body; hard nucleus, alkaline.

Simple—Compound—Alternating—Free—Encysted.

Single, usually vesical origin; possibly no morbid action.

Multiple, renal origin; showing lithic diathesis. Distinguished between fracture of originally single stone and multiple stone.

Characters may determine source, *i. e.*, lithic disease, or accidental chemical action in bladder.

Calculus.	Number.	Size.	Weight.	Shape.	Color.	Odor.	Consistence	Surface.
Uric Acid.	1 to 1,000.	Pea to pigeon's egg.	5 gr. to 2 oz. or more.	Ovoid, irregular; smooth corners from attrition.	Yellow, or pale brown.	Urinous.	Hard.	Smooth.
Calcic Oxalate.	1 to 3.	Same.	Heavier than above.	Ovoid, regular.	Brown or black.	Seminal.	Very hard.	Tuberculated "Mulberry."
Triple Phosphate.	1 or others from fragments.	Pigeon's egg, to fist, or larger.	Light, may float on water	Irregularly spherical.	White, or yellowish.	Ammonia.	Friable.	Irregular.
Calcic Phosphate.	As above or like paste, or mortar.	As above.	As above.	As above, or irregular form, moulded by bed.	Grayish white.	Fœtid.	Soft.	Irregular, "worm-eaten."

SEMEIOLOGY: Sometimes no symptoms, as encysted. Again, sudden symptoms, as thrown out of encystment. Distinguished from cystitis, or irritable bladder.

Rational Signs, irritation at meatus; frequent urination; sudden stoppage of stream; weight in perineum; rolling in bladder: later, cystitis, mucus, pus, blood. Advanced stages, symptoms very urgent.

Positive signs, touching stone with sound. But,

Sources of error.
- Mistake sacrum for stone.
- Rings, or ornaments on watch-chain.
- Enlarged prostate.
- Encysted stone.
- Floating calculus.
- Soft consistency.

PATHOLOGY: Bladder thickened; pouched; contracted; inflamed, particularly at neck, where ecchymosis or erosion from impact of stone.

TREATMENT: To dissolve (disintegrate) stone by chemical agents: lithia water, Getteysburgh water, etc. Failing, then remove stone from bladder, and treat lithiasis, if exists.

Crushing.
- Lithontripsy,
- Litholopaxy.

Lithotomy.
- Perineal.
  - Median.
  - Lateral.
  - Bi-lateral.
- Supra-pubic (epicystotomy).
- Vaginal.
- Rectal.

(*d*) URETHRAL CALCULUS:

Lodgment in urethra, in passage from the bladder; or originates interior to stricture, as in uretal calculus. Diagnosis simple. Extraction by forceps, or section.

XXXII. SURGERY OF THE MALE GENITALS.

1. PHIMOSIS:

Defect of prepuce, preventing retraction. *Congenital*, usually very long, with small opening; often adhesions. *Acquired* (acute), from some inflammatory affection (gonorrhœa), or traumatism. *Consequences*, *local*, erosions, from smegma, and adhesions to glans. *General*, various reflexes.

TREATMENT: In *old acquired*, or *congenital*, circumscision; splitting; combination. Mucous membrane chief obstacle. Careful

management of adhesions. *Recent* acquired, remedies as indicated. *Acon.*, *Bell.*, *Rhus.*

2. PARAPHIMOSIS.

Retraction of prepuce behind corona. Accidental. Inflammation rapidly induced, and increasing difficulty in replacement. Danger of strangulation and gangrene.

TREATMENT: On principle of dislocation—first increase deformity; thumbs on glans, fingers behind constriction. Retraction, and division of constricting ring, with director and blunt-pointed knife. *Acon.*, *Arn.*, *Bell.*, *Rhus.*, after reduction.

3. SARCOCELE:

Tumor of scrotum, usually commencing in testicle; of any variety; chiefly fibroma, sarcoma, or malignant. Swelling begins at bottom of scrotum, slowly extending upwards; chronic; non-inflammatory.

TREATMENT: Excision in *all* cases. Suspension for temporary relief.

4. HÆMATOCELE:

Blood-cyst (hæmatoma) of scrotum, usually within tunica vaginalis. Acute; traumatic: commences in bottom of scrotum; globular or pyriform shape; dark color; ecchymotic; opaque.

TREATMENT: Avoid opening. *Arn.*, *Coni.*, *Ham.*, and compression. If degeneration occurs, open freely, wash out, and examine testicle for lesion.

5. HYDROCELE:

Dropsy of tunica vaginalis, or the cord. Chronic; usually non-traumatic. *Tunica vaginalis*, commences in bottom of scrotum; globular, or pyriform; light; translucent; painless. *Of the Cord*, may extend from the former; or commence higher up. Irregular form, resembling hernia, or varicocele. A frequent complication of other scrotal diseases.

TREATMENT: Recent cases, *Sil.*, *Hell.*, *Ranunc B.*, *Apis.* Aspiration, and *Sil.* "Long incision." Excision.

6. VARICOCELE:

Varix of veins of scrotum, or (labia); oftener on left side. Chronic; commences lower and back part of scrotum; irregular enlargement; feels like a mass of worms; somewhat smaller when lying; often some "coldness" and relaxation of scrotum; atrophy of testicle; various reflexes.

TREATMENT: *Recent cases*, suspension, *Ham.*, *Nux V.*, *Sulph.*, *Aloes*. *Chronic*, "reefing" scrotum; ligature, single or double; ligature and division; ligature and excision.

7. ORCHITIS (Hernia Humoralis; Epididymitis):
Inflammation of epididymus, usually involving testicle. Acute; symptomatic, or traumatic; concomitant of gonorrhœa; hard swelling, ovoid or spherical; painful; sensitive; fever; slowly declining; a permanent "button" at lower extremity of epididymus. Sometimes abscess.
TREATMENT: Support; hot fomentations. *Aur Met.*, *Arn.*, *Bell.*, *Coni.*, *Phytol.*, *Sil.*, *Cicuta V.*, *Puls.*

XXXIII. MALFORMATIONS AND ARRESTED DEVELOPMENT.

1. HARE-LIP:
Congenital fissure of the upper lip. Arrested development.
(*a*) *Single*, never in middle line; associated with some abnormality in jaw.
(*b*) *Double*, fissure on each side of median line; the space of the intra-maxilary bone.
(*c*) *Complicated*, by fissure of hard palate; fissure of alveolus; projection of intra-maxilary bone; extending into nares. Constitutes an imperfect cleft-palate: a disability in all forms, from simple obstacle in suckling to deformity of jaw.
TREATMENT: Operation as early as possible; at all events before dentition. Cases of *post natal* completion of development under *Calc C.*

2. CLEFT PALATE:
Congenital fissure in palate, hard, soft, or both. Arrested development.
Partial, in soft palate only, or extending to alveolus.
Complete, extending through jaw, and hare-lip.
Constitutes disability as to phonation, and deglutition; often, consequently, inmutrition.
TREATMENT; Operation (staphyloraphy), after second year or later. As to phonation, sometimes better results from obturator. If hare-lip, closure will often close palate, particularly with *Calc C.*

3. SPINA BIFIDA:
Congenital deficiency in arches of one or more vertebræ, oftener in lumbar spine. Arrested development.
An elastic tumor, increasing slowly in size; emptied by compression but quickly fills again; pressure sometimes causes convulsions. Oftener simple distension of meninges by cerebro-spinal fluid; again abnormalities in spinal nerves, with arrested development of lower extremities.

Treatment: Elastic pressure, and *Calc C.* In old cases, or large tumors, aspiration, pressure, *Calc C. Post-natal* completion of development common.

4. EXTROPHY OF BLADDER:
Deficiency in abdominal walls, and anterior wall of bladder. Arrested development.
Often accompanied by abnormalities in genital apparatus, *e. g.* Hypospadius. Epispadius, etc.
Treatment: Operation. No records of spontaneous cure.

5. WEB-FINGERS:
Often hereditary defect. Of toes also. Frequently associated with supernumerary (rudimentary) members.
Operative treatment.

XXXIV. OUTLINES OF OPERATIVE SURGERY.

Legal Questions: Competency of patient to consent; responsibility for departure from standard methods.
Classification: Emergency—expediency. Major—minor. Formal, informal (impromptu). Capital. Primary, secondary, intermediary.
Objects: Save life, or function; remove blemish, or disability.
Requirements: Knowledge of regional anatomy. Manual dexterity. Mechanical knowledge. Boldness, with caution.
1. Preliminary; Establish necessity, to satisfaction of all concerned. Settle responsibility. Plan line of incisions. Estimate possible obstacles.
2. Preparatory: Commit to writing, articles provided by operator, and by family or attendants. Secure sufficient and adequate assistance, in capital cases, particularly, for division of responsibility. Fix time, *e. g.* Season—weather—hour—room.
3. Operation: Punctuality. Compare list of wants. Test anesthetic. Assistants to attend to appointed duties only.
4. After treatment: If not conducted in person, put in writing. Contributory negligence.

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